British West Indies Central Sugar Cane Breeding Station, Barbados

NINETEENTH ANNUAL REPORT

For The Year Ending September 30th, 1952

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British West Indies Central Sugar Cane Breeding Station, Barbados.

NINETEENTH ANNUAL REPORT FOR THE YEAR ENDING THE 30TH SEPTEMBER, 1952

The usual methods were employed in the controlled crossing of various sugar cane varieties at Groves Agricultural Station from October, 1951 to January, 1952. Arrowing during the season was very profuse and concentrated over a very short period. One hundred and eighteen lanterns were employed, of which one hundred and one were used for the regular crossing work, and seventeen for selfs and sib-crosses for the Cytogeneticist.

(ii) SEEDLING RAISING, POTTING, PLANTING IN THE FIELD NURSERY AND IN THE SHORT SEASON FIRST YEAR SEEDLING TRIAL

Germination was quite good on the whole but, as always happens, some crosses proved to be incompatible and failed to produce viable seed. It is estimated that over one hundred and thirteen thousand seedlings germinated, of which about thirty-one thousand were potted and approximately twenty-eight thousand survived and were planted in the Field Nursery and the Short Season First Year Seedling Trial.

Table I gives, under group heads, a list of the crosses made, the numbers of seedlings germinated, potted and planted in the Field Nursery and in the B.53′ Series Short Season First Year Seedling Trial, while Appendix I gives details of all crosses made.

TABLE I

Number of Crosses and Seedlings in each group germinated, potted and planted in the Field Nursery B.54′ Series and in the Short Season First Year Seedling Trial B.53′ Series

GROUP	No. of Crosses	No. Germinated	No. Potted	No. Planted in Field Nursery	No. Planted in First Year Trial
S. officinarum x S. spontaneum					
3rd Nobilisation Glagah	7	1,484	1,174	775	100
3rd Nobilisation Celebes	2	448	439	339	—
3rd Nobilisation Chunnee	1	160	160	140	—
4th Nobilisation Glagah	3	5,836	736	427	100
Noble x Glagah x Local	2	6,700	1,900	990	200
Noble Glagah x Celebes	2	455	255	175	—
Noble x Glagah x Local x Celebes ...	1	1,200	500	300	—
S. officinarum x S. spontaneum x S. barberi					
Noble x Glagah x Chunnee	18	13,329	5,199	3,369	300
Noble x Local x Chunnee	2	770	770	449	100
Noble x Glagah x Local x Chunnee ...	41	45,493	12,212	7,800	1,000
Noble x Glagah x Celebes x Chunnee ...	2	800	650	450	—
Noble x Local x Celebes x Chunnee ...	1	800	350	200	—
Noble x Glagah x Local x Celebes x Chunnee	4	2,140	1,520	954	100
S. officinarum x S. spontaneum x S. robustum					
Noble x Glagah x Local x Celebes x Robustum	1	1,500	150	100	—
Noble x Celebes x Robustum	1	—	—	—	—
S. officinarum x S. barberi x S. spontaneum x S. robustum					
Noble x Local x Celebes x Chunnee x Robustum	1	110	110	89	—
S. officinarum x S. barberi x S. robustum					
Noble x Chunnee x Robustum	1	350	150	80	—
S. officinarum x S. spontaneum x S. barberi x S. sinense					
Noble x Local x Chunnee x Sinense ...	1	14	14	10	—
Noble x Glagah x Local x Chunnee x Sinense	10	15,610	2,610	1,439	100
TOTALS	101	97,199	28,899	18,086	2,000

(iii) PLANTING THE FIRST YEAR SEEDLING TRIAL, LONG SEASON—B.53′ SERIES

This series was bred in 1950, potted and planted in the Field Nursery in 1951, and from this into the First Year Seedling Trial in October, 1951. All seedlings considered to be too thin for commercial purposes were eliminated at this stage, as well as all seedlings which arrowed heavily, unless the seed-

lings were required for breeding purposes only. This procedure greatly reduces the number of seedlings planted in the First Year Seedling Trial and saves time and labour during the crop season.

Table II gives under group heads, a summary of the number of crosses together with the numbers of seedlings planted in the First Year Seedling Trial, while details for each of the crosses made are given in Appendix II.

TABLE II

Number of Crosses and Seedlings in each Group Planted in the First Year Seedling Trial, October, 1951 — B.53′ Series

GROUP	No. of Crosses	No. of Seedlings Planted in First Year Trial
S. officinarum x S. spontaneum		
3rd Nobilisation Glagah	3	294
Noble x Glagah x Local	2	780
Noble x Glagah x Celebes	5	128
Noble x Glagah x Local x Celebes	1	9
S. officinarum x S. barberi		
3rd Nobilisation Chunnee	1	120
4th Nobilisation Chunnee	1	8
S. officinarum x S. spontaneum x S. barberi		
Noble x Local x Chunnee	2	130
Noble x Glagah x Chunnee	15	1,301
Noble x Glagah x Local x Chunnee	45	4,458
Noble x Glagah x Celebes x Chunnee	6	371
Noble x Glagah x Local x Celebes x Chunnee	6	807
S. officinarum x S. spontaneum x S. sinense		
Noble x Glagah x Celebes x Sinense	1	30
Noble x Glagah x Local x Sinense	1	120
Noble x Glagah x Sinense	1	5
S. officinarum x S. spontaneum x S. barberi x S. sinense		
Noble x Local x Chunnee x Sinense	2	95
Noble x Glagah x Chunnee x Sinense	4	480
Noble x Glagah x Local x Chunnee x Sinense	5	315
S. officinarum x S. barberi x S. robustum		
Noble x Chunnee x Robustum	3	79
S. officinarum x S. spontaneum x Erianthus arundinaceous		
Noble x Glagah x Erianthus	1	100
TOTALS	105	9,630

(iv) RESULTS OF REAPING THE FIRST YEAR SEEDLING TRIALS— B.52′ SERIES

These series were bred in 1949 and 1950. The long season seedlings were planted in the Field Nursery in May, 1950, and from this into the First Year Seeedling Trial in October, 1950. The Short Season Trial was planted from

pots in May, 1951. These trials were cut as plant canes during the crop season.

Fifty-one selections were made from the Short Season Trial and three hundred and forty-five from the Long Season Trial, making a total of three hundred and ninety-six altogether.

Tables III and IV give details of the field and final selections made from each cross.

TABLE III

First Year Seedlings — B.52′ Series Field and Final Selections

CROSS	No. of Seedlings Cut	No. Field Selected	% Field Selection	No. Finally Selected	% Final Selection
Ba.11569 x B.35276	10	—	—	—	—
Ba.11569 x B.45111	15	—	—	—	—
B.3365 x B.34104	130	15	12	8	6
B.3439 x B.41227	60	2	3	2	3
B.3439 x Co.290	460	18	4	9	2
B.3439 x Co.419	150	4	3	1	1
B.34102 x B.4098	200	4	2	1	1
B.34102 x B.43391	150	7	5	4	3
B.35197 x B.34104	100	3	3	1	1
B.35197 x B.41227	155	13	8	7	5
B.35197 x B.42231	145	11	8	6	4
B.35197 x B.46136	266	5	2	3	1
B.35207 x B.34104	70	9	13	5	7
B.35207 x B.48394	50	21	4	2	4
B.35247 x B.34104	34	2	6	2	6
B.35247 x B.41227	60	7	12	3	5
B.37161 x B.34104	220	13	6	5	2
B.37161 x B.37164	45	6	13	1	2
B.37161 x B.4098	446	24	5	20	4
B.37161 x B.40102	50	6	12	3	6
B.37161 x B.41227	100	13	13	8	8
B.37161 x B.41242	70	5	7	1	1
B.37161 x B.42114	100	2	2	2	2
B.37161 x B.42231	97	5	5	1	1
B.37161 x B.43214	360	14	4	7	2
B.37161 x B.43391	58	6	10	3	5
B.37161 x Co.419	120	6	5	2	2
B.37172 x B.4098	300	21	7	17	6
B.37172 x B.41227	30	3	10	2	7
B.37172 x B.4226	150	8	5	3	2
B.37172 x B.44177	10	1	10	—	—
B.37172 x Co.281	20	1	5	—	—
B.38203 x B.34104	45	3	7	1	2
B.38233 x B.34104	75	—	—	—	—
B.38233 x B.4098	140	10	7	4	3
B.38272 x B.4098	280	16	6	5	2
B.39207 x B.41211	200	13	7	10	5
B.4094 x P.O.J.2878 ...	5	—	—	—	—
B.40272 x B.46248	5	—	—	—	—
B.40272 x Co.290	177	6	3	3	2

TABLE III *(Concluded)*

CROSS	No. of Seedlings Cut	No. Field Selected	% Field Selection	No. Finally Selected	% Final Selection
B.4111 x B.41227	40	1	3	—	—
B.4145 x B.4098	790	54	7	31	4
B.4145 x B.40102	5	1	20	—	—
B.4145 x B.40105	10	2	20	1	10
B.4145 x B.40118	30	3	10	1	3
B.4145 x B.41227	160	15	9	7	4
B.4145 x B.43290	5	—	—	—	—
B.4145 x B.48121	2	—	—	—	—
B.4145 x B.48122	20	—	—	—	—
B.4145 x Co.281	5	1	20	1	20
B.4196 x B.47256	5	—	—	—	—
B.41227 x Self	15	3	20	1	7
B.4214 x B.41227	20	1	5	—	—
B.42304 x B.41227	200	13	7	8	4
B.42304 x B.46265	70	5	7	1	1
B.4362 x B.4098	70	14	20	11	16
B.4362 x B.41227	30	2	6	1	3
B.4373 x B.4098	150	8	6	5	3
B.43283 x B.41227	450	32	7	19	4
B.43349 x B.34104	80	5	6	1	1
B.43358 x B.43127	75	1	1	—	—
B.44167 x B.34104	144	8	6	4	3
B.44182 x B.4098	38	1	3	1	3
B.4558 x B.4098	300	20	7	11	4
B.45119 x B.4098	100	13	13	8	8
B.45137 x B.39156	30	1	3	—	—
B.45154 x B.4098	250	18	7	7	3
B.45155 x B.4098	75	3	4	2	3
B.45170 x B.34104	160	8	5	3	2
B.45198 x B.4098	50	3	6	3	6
B.4699 x B.4454	28	1	4	1	4
B.46190 x B.4098	200	11	6	6	3
B.46288 x B.37261	5	—	—	—	—
B.48118 x B.4098	50	3	6	—	—
B.48306 x B.4098	100	4	4	4	4
B.48361 x B.4098	100	6	6	2	2
Co.421 x B.34104	160	5	3	3	2
Co.421 x B.39156	348	15	4	9	3
Co.421 x B.4098	200	13	7	7	3
Co.421 x B.41211	686	36	5	18	3
Co.421 x B.41227	540	24	4	16	3
P.O.J.2364 x B.34104	207	3	1	1	—

TABLE IV

First Year Seedlings, Short Season Types — B.52′ Series, Field and Final Selections

CROSS	No. of Seedlings Cut	No. Field Selected	% Field Selection	No. Finally Selected	% Final Selection
B.3439 x B.43235	100	7	7	5	5
B.3439 x Co.290	100	8	8	4	4
B.34102 x B.34104	100	3	3	2	2
B.37161 x B.4098	100	5	5	4	4
B.4145 x B.4098	200	12	6	9	5
B.4362 x B.37193	100	6	6	3	3
B.4362 x B.4098	200	5	3	3	2
B.4362 x B.43235	100	12	12	10	10
B.4362 x P.O.J.2878	100	4	4	2	2
B.43253 x B.4098	100	1	1	1	1
B.43283 x B.41227	100	5	5	1	1
B.45170 x Co.419	100	3	3	—	—
B.4726 x B.4098	100	5	5	1	1
Co.421 x B.41211	200	14	7	3	2
Co.421 x B.43375	100	7	7	2	2
Co.421 x B.47147	100	7	7	1	1

As a result of these trials, it has been decided not to repeat any of the following crosses, as the percentage number of seedlings selected from their progenies is not sufficiently large:—

B.3439 x Co.419
B.34102 x B.4098
B.35197 x B.34104
B.35197 x B.46136
B.37161 x B.41242
B.37161 x B.42231
B.37172 x B.4226
B.38203 x B.34104
B.38233 x B.34104
B.4111 x B.41227
B.4145 x B.48122
B.42304 x B.46265
B.43349 x B.34104
B.43358 x B.43127
B.45137 x B.39156
B.48118 x B.4098
P.O.J.2364 x B.34104

(v) PROGRESS WITH SEEDLINGS OF THE B.51′ SERIES

The three hundred and seventy-eight selections of the B.51′ Series were multiplied at Codrington during 1951, and in October a minor selection reduced the number to two hundred and twenty-four. The selected seedlings were planted in the Central Sugar Cane Breeding Station's Second Year Seedling Trials at the low rainfall Station Codrington (2) trials and in duplicate trials at the high rainfall Stations, Todds and Hothersal. A short season trial with the selected seedlings of this series was also planted at Codrington in May, 1952. Planting material for this trial was established at Codrington in September, 1951. This trial was planted under irrigation, and the plots will be irrigated as there is a shortage of moisture. This trial will be cut at the end of the 1953 crop season.

(vi) PROGRESS WITH SEEDLINGS OF THE B.50′ SERIES

The selected seedlings of this series were planted in the Central Sugar Cane Breeding Station's Second Year Seedling Trials at the low rainfall Station, Codrington (2 trials) and in duplicate trials at the high rainfall

Stations, Pool and Andrews in November, 1950. These trials were cut as plant canes during the past crop season, when forty selections were made. Five of these seedlings are for the breeding plots at Groves only, while in October the remainder will be sent to those colonies for which they were selected. In addition to these selections, one seedling was selected from the Short Season Trial, and this will be sent to British Guiana along with the other selections.

The performances of the selected seedlings along with those of the standard varieties are given in Tables V, VI and VII.

TABLE V

Second Year Seedling Trials — Plant Canes — B.50′ Series

Codrington Cut 24th—28th January, 1952
Pool Cut 21st—25th March, 1952

SEEDLING	PARENTAGE	No. of Canes (Rotten)		% Arrowing		Z.H.R. Brix		Tons Cane per Acre	
		Codrington	Pool	Codrington	Pool	Codrington	Pool	Codrington	Pool
GROUP I									
B.37161 ...	Standard ...	77(0)	94(19)	30	37	19.5	21.5	22.08	30.79
B.41211 ...	Standard ...	75(1)	29(93)	1	—	18.6	20.6	22.46	* 9.20
B.5011 ...	B.3439 x Co.290	98(1)	113(22)	29	30	20.1	21.7	33.12	43.95
B.5012 ...	B.35207 x P.O.J.2878	84(1)	93(37)	97	34	19.6	21.5	20.16	41.57
B.5014 ...	B.37172 x B.34104	128(0)	133(20)	22	16	21.1	21.7	27.46	33.45
B.5028 ...	B.4145 x B.4098	98(1)	101 (9)	35	57	20.1	22.5	33.98	46.10
B.5032 ...	B.45170 x B.41227	96(1)	121(16)	59	35	20.0	21.5	23.14	37.07
GROUP II									
B.37161 ...	Standard ...	80(3)	77(13)	13	42	19.5	21.7	22.27	28.12
B.41211 ...	Standard ...	94(1)	29(96)	1	18	18.8	21.1	23.33	* 15.82
B.5037 ...	Co.421 x B.4098	110(2)	194(11)	41	38	21.5	23.4	26.69	54.95
B.5041 ...	Co.421 x B.41211	114(0)	121(12)	7	32	20.4	21.1	36.10	43.09
B.5047 ...	B.3365 x B.4098	135(1)	145 (8)	35	17	20.1	21.6	30.43	46.44
B.5060 ...	B.3439 x B.45116	117(0)	115(10)	1	35	19.6	22.1	29.95	34.92
GROUP III									
B.37161 ...	Standard ...	73(0)	110 (7)	36	37	20.1	21.7	19.39	36.81
B.41211 ...	Standard ...	70(0)	54(78)	2	9	18.4	21.9	16.42	* 19.61
B.5073 ...	B.34102 x B.34104	103(2)	134 (9)	25	77	19.2	22.1	25.34	40.68
B.5080 ...	B.35197 x B.4098	78(3)	115(18)	10	53	18.9	20.8	21.14	49.28
B.5082 ...	B.35197 x B.41227	72(1)	126 (7)	50	59	19.4	21.9	17.09	43.86
GROUP IV									
B.37161 ...	Standard ...	93(4)	97(18)	16	34	20.0	20.7	28.32	32.34
B.41211 ...	Standard ...	111(3)	28(104)	2	16	20.3	21.0	26.59	* 13.16
B.5093 ...	B.35247 x B.41227	156(5)	181(73)	7	31	17.5	18.6	40.03	58.48
B.5098 ...	B.37161 x B.4098	112(3)	142 (8)	—	3	19.9	21.4	45.70	55.73
B.50109 ...	„ x „	58(0)	125(20)	3	3	19.7	22.0	20.16	46.61
B.50112 ...	„ x „	110(2)	168 (9)	2	41	19.5	22.2	29.47	57.96
B.50115 ...	„ x „	96(3)	152 (5)	—	23	18.4	20.9	36.77	47.69

TABLE V *(Concluded)*

SEEDLING	PARENTAGE	No. of Canes (Rotten)		% Arrowing		Z.H.R. Brix		Tons Cane per Acre	
		Codrington	Pool	Codrington	Pool	Codrington	Pool	Codrington	Pool
GROUP V									
B.37161 ...	Standard ...	90(13)	124(14)	18	46	20.2	20.9	26.59	41.37
B.41211 ...	Standard ...	103(3)	67(82)	6	13	19.4	22.1	28.99	* 22.36
B.50126 ...	B.37194 x B.4098	120(2)	166 (4)	—	43	21.1	23.7	30.05	42.14
B.50135 ...	B.38212 x B.4098	104(2)	108(18)	28	59	21.2	23.0	36.19	45.15
B.50141 ...	B.38233 x B.4098	134(3)	132(15)	3	42	19.1	21.1	32.93	48.59
B.50146 ...	B.39254 x B.4098	148(9)	118(52)	3	46	20.0	21.4	35.52	37.93
B.50152 ...	B.4362 x B.4098	105(4)	151(13)	2	25	18.2	18.5	31.58	58.57
B.50153 ...	„ x „	117(5)	132(17)	4	5	20.5	22.7	33.12	40.42
GROUP VI									
B.37161 ...	Standard ...	79(9)	95(16)	26	20	19.4	21.5	24.19	34.49
B.41211 ...	Standard ...	98(1)	74(49)	11	5	20.0	22.3	24.86	* 27.09
B.50155 ...	B.4362 x B.4098	100(5)	137 (7)	9	66	20.3	21.7	27.55	43.17
B.50166 ...	B.45102 x B.H.10(12)	99(0)	185(16)	6	14	19.3	21.6	24.96	63.21
B.50184 ...	B.45186 x B.4098	116(0)	149 (8)	3	32	18.6	20.8	30.24	55.99

* *Very badly damaged by rats.*

TABLE VI

Second Year Seedling Trials — Plant Canes—B.50' Series

Codrington Cut 21st—23rd January, 1952

Andrews Cut 26th—28th March, 1952

SEEDLING	PARENTAGE	No. of Canes (Rotten)		% Arrowing		Z.H.R. Brix		Tons Cane per Acre	
		Codrington	Andrews	Codrington	Andrews	Codrington	Andrews	Codrington	Andrews
GROUP VII									
B.37161 ...	Standard ...	102(2)	155(18)	31	34	19.2	19.9	26.69	52.03
B.41211 ...	Standard ...	117(1)	136(58)	10	3	19.7	21.1	28.08	49.19
B.50196 ...	Co.421 x B.43290	144(1)	204(29)	78	59	19.3	21.3	25.34	56.85
B.50206 ...	Co.421 x B.43375	76(0)	139(13)	23	47	18.1	20.6	19.30	45.67
B.50210 ...	Co.421 x B.45109	82(3)	158(14)	33	29	19.3	20.8	22.37	59.00

TABLE VI *(Concluded)*

SEEDLING	PARENTAGE	No. of Canes (Rotten)		% Arrowing		Z.H.R. Brix		Tons Cane per Acre	
		Codrington	Andrews	Codrington	Andrews	Codrington	Andrews	Codrington	Andrews
GROUP IX									
B.37161 ...	Standard ...	101(4)	103(26)	7	34	20.9	20.3	27.98	34.33
B.41211 ...	Standard ...	105(5)	78(33)	6	—	20.3	20.2	27.98	35.09
B.50267 ...	B.37161 x B.4098	115(1)	193(31)	—	31	21.4	21.0	24.58	62.78
B.50268 ...	„ x „	122(7)	185(35)	—	7	20.1	20.7	24.10	62.78
B.50275 ...	„ x „	72(1)	152(39)	14	30	20.8	20.1	24.29	55.64
GROUP X									
B.37161 ...	Standard ...	91(6)	104(34)	15	38	19.6	20.1	25.06	44.55
B.41211 ...	Standard ...	109(1)	130(29)	3	3	17.8	20.6	23.71	36.03
B.50311 ...	B.37161 x B.4098	99(1)	171(25)	6	36	20.4	21.0	24.67	51.69
GROUP XI									
B.37161 ...	Standard ...	101(4)	141(20)	17	32	19.9	18.7	24.58	45.41
B.41211 ...	Standard ...	91(3)	111(27)	5	2	20.0	20.2	22.18	51.26
B.50340 ...	B.40272 x Co.281	115(2)	153(20)	32	52	19.7	20.9	28.99	60.54
B.50345 ...	B.4362 x B.4098	69(4)	164 (9)	6	35	21.4	19.9	14.88	50.84
B.50347 ...	„ x „	77(5)	197(17)	14	57	19 9	20.1	25.63	60.63
B.50352 ...	B.45170 x B.4098	116(3)	169 (9)	28	86	19.0	20.9	21.70	52.37
GROUP XII									
B.37161 ...	Standard ...	72(2)	132(22)	23	53	20.1	20.0	22.18	45.49
B.41211 ...	Standard ...	117(1)	81(56)	13	4	19.9	21.2	24.38	35.17
B.50370 ...	Co.421 x B.43290	114(3)	142(12)	59	48	19.7	20.4	19.58	49.54
B.50377 ...	Co.421 x B.43375	69(1)	189 (6)	65	92	21.4	24.0	21.89	61.15
B.50378 ...	„ x „	75(2)	120 (4)	61	74	14.4	20.5	18.20	50.74

TABLE VII

Second Year Seedlings—B.50′ Series Short Season Trial
Codrington Cut — 25th April 1952

SEEDLING	PARENTAGE	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Weight Tons Cane per Acre
B.37161 ...	Standard ...	65(1)	—	20.0	15.17
B.4098 ...	Standard ...	84(1)	—	20.7	20.90
Bs.5019 ...	B.38233 x B.41211	94(0)	—	20.6	26.33

(vii) PROGRESS WITH SEEDLINGS OF THE B.49′ SERIES

These seedlings were cut as plant cane during the 1951 crop season. They were again cut as first ratoons during the past crop at the high rainfall Stations, Henley and Clifton Hall, when two of the thirty-two selections were discarded on their ratoon performance.

The seedlings of this series which appeared to show most promise for Barbados conditions were planted in Third Year Seedling Trials in November, 1951. These trials will be cut during the 1953 crop season.

The performances of the selected seedlings together with those of the standard varieties are given in Tables VIII and IX.

TABLE VIII

Second Year Seedling Trials — First Ratoons—B.49′ Series

Henley Cut—17th—21st April,, 1952

SEEDLING	PARENTAGE	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Tons Cane per Acre
GROUP I					
B.37161 ...	Standard ...	156(10)	14	21.5	65.66
B.4098 ...	Standard ...	184(17)	7	22.3	66.72
B.41211 ...	Standard ...	126(20)	—	20.9	50.98
B.4906 ...	B.3439 x B.40123	173 (9)	—	21.1	57.89
GROUP II					
B.37161 ...	Standard ...	142 (9)	14	21.0	59.71
B.4098 ...	Standard ...	187(12)	13	21.6	59.81
B.41211 ...	Standard ...	80(57)	—	21.2	33.31
B.4942 ...	B.37161 x B.4098	144(26)	4	21.7	52.20
B.4956 ...	,, x ,,	115(12)	—	19.7	50.02
B.4966 ...	B.45170 x B.4098	128(13)	—	19.6	48.86
GROUP III					
B.37161 ...	Standard ...	163 (7)	15	21.4	67.10
B.4098 ...	Standard ...	157(13)	17	21.9	59.71
B.41211 ...	Standard ...	110(42)	—	20.8	40.51
B.4995 ...	B.34102 x B.4098	171(18)	8	22.0	60.67
GROUP IV					
B.37161 ...	Standard ...	151 (7)	20	21.1	57.31
B.4098 ...	Standard ...	155(11)	13	21.7	57.12
B.41211 ...	Standard ...	109(48)	2	20.8	34.56
B.49119 ...	B.35218 x B.4098	221 (5)	4	21.4	83.71
B.49122 ...	,, x ,,	124(11)	—	20.3	51.74
B.49125 ...	,, x ,,	158(23)	30	18.4	47.01

TABLE VIII *(Concluded)*

SEEDLING	PARENTAGE	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Tons Cane per Acre
GROUP V					
B.37161 ...	Standard ...	123 (6)	22	21.4	49.44
B.4098 ...	Standard ...	158 (9)	15	22.6	49.63
B.41211 ...	Standard ...	95(32)	2	21.1	36.19
B.49166 ...	B.38233 x B.34104	115 (5)	3	20.5	41.14
GROUP VI					
B.37161 ...	Standard ...	145 (6)	5	22.1	66.62
B.4098 ...	Standard ...	179 (7)	10	21.2	67.87
B.41211 ...	Standard ...	118(23)	—	20.5	40.99
B.49186 ...	B.42279 x B.37193	126 (3)	—	21.4	52.65
GROUP VII					
B.37161 ...	Standard ...	136(11)	18	21.1	54.82
B.4098 ...	Standard ...	160 (8)	11	21.1	54.82
B.41211 ...	Standard ...	114(18)	2	21.5	45.70
B.49197 ...	B.43283 x B.41227	199 (5)	4	19.8	63.46
B.49198 ...	„ „ „ ...	160 (2)	—	20.2	61.92
GROUP VIII					
B.37161 ...	Standard ...	146 (8)	9	20.7	60.10
B.4098 ...	Standard ...	166 (8)	24	21.6	57.60
B.41211 ...	Standard ...	125(24)	1	20.9	43.87
B.49229 ...	B.34102 x B.37193	139(11)	1	22.6	40.75

TABLE IX

Second Year Seedling Trials — First Ratoons—B.49' Series

Clifton Hall Cut—22nd—24th April 1952

SEEDLING	PARENTAGE	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Tons Cane per Acre
GROUP IX					
B.37161 ...	Standard ...	128 (9)	20	21.8	49.73
B.4098 ...	Standard ...	176(17)	16	21.7	53.80
B.41211 ...	Standard ...	106(45)	—	20.1	46.44
B.49257 ...	B.37161 x B.4098	119(18)	1	20.4	59.81
B.49273 ...	B.40272 x B.4098	164(21)	7	23.7	47.01
GROUP X					
B.37161 ...	Standard ...	127 (8)	21	21.6	51.36
B.4098 ...	Standard ...	146(13)	17	21.9	47.81
B.41211 ...	Standard ...	126(47)	—	20.7	52.13
B.49281 ...	B.4457 x P.O.J.2878	151(13)	21	21.5	51.36
B.49301 ...	B.3365 x B.34104	142(30)	—	21.4	51.26

TABLE IX *(Concluded)*

SEEDLING	PARENTAGE	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Tons Cane per Acre
GROUP XI					
B.37161 ...	Standard ...	165(10)	24	21.9	58.77
B.4098 ...	Standard ...	160(18)	19	21.6	53.57
B.41211 ...	Standard ...	150(25)	—	21.2	58.37
B.49309 ...	B.34102 x B.34104	145(17)	7	21.2	50.59
B.49311 ...	„ x „	165(14)	11	21.5	61.82
GROUP XII					
B.37161 ...	Standard ...	151(17)	22	22.2	51.18
B.4098 ...	Standard ...	151(11)	28	22.4	43.49
B.41211 ...	Standard ...	189(13)	—	21.4	74.50
B.49346 ...	B.35247 x B.4306	147(16)	13	18.2	44.34
GROUP XIII					
B.37161 ...	Standard ...	129 (9)	23	22.0	53.42
B.4098 ...	Standard ...	155 (6)	20	21.6	52.84
B.41211 ...	Standard ...	140(20)	3	20.4	57.22
B.49353 ...	B.37161 x P.O.J.2878	148 (6)	30	22.1	53.28
B.49354 ...	„ x „	181 (6)	30	21.5	49.06
B.49355 ...	„ x „	103 (7)	16	21.8	40.80
B.49372 ...	B.38272 x B.4098	161(11)	21	19.4	45.60
B.49376 ...	B.40272 x Co.290	102(22)	22	20.8	35.90
B.49377 ...	„ x „	173 (5)	46	20.8	47.01
GROUP XIV					
B.37161 ...	Standard ...	130 (5)	24	22.1	45.79
B.4098 ...	Standard ...	153 (9)	22	22.0	52.32
B.49380 ...	B.43253 x B.39274	158(14)	19	20.5	44.92
B.49388 ...	B.4455 x B.4098	130(22)	22	19.7	41.05
B.49396 ...	Co.421 x B.45237	174 (4)	36	22.7	54.82
B.49397 ...	„ x „	223 (2)	76	21.9	50.78
B.49399 ...	„ x „	162(15)	71	22.0	39.17

(viii) THIRD YEAR SEEDLING TRIALS AND SELECT SEEDLING TRIALS B.47′ AND EARLIER SERIES

A. The Seedlings Tested

1. Third Year Seedling Trials

Plant Canes:— B.4851, B.4881, B.4888, B.48117, B.48126, B.48177, B.48179, B.48259, B.48330, B.48332 and B.48392.

First Ratoons:— B.4466, B.46103, B.4738, B.4743, B.4744, B.4747, B.4764, B.4781, B.4788, B.47135, B.47147, B.47151, B.47162, B.47204, B.47214, B.47216, B.47217, B.47233, B.47258, B.47314, B.47379, B.47380, B.47397 and B.47419.

Second Ratoons :—B.4502, B.4503, B.4504, B.4506, B.4556, B.4572, B.4596 B.45137, B.45151, B.45152, B.4604, B.4681, B.4691, B.46102, B.46136, B.46223, B.46232, B.46284, B.46288, B.46364, B.46394, B.46397 and S.45.

2. Select Seedling Trials

Plant Canes:— B.37161, B.4098, B.41211, B.46223 and B.46397.

B. An Ecological Classification of the Trials

This classification was proposed by Turner after a study of the sugar cane soils of the British West Indian Colonies, and is as follows:—

Group I:—Soils with a natural tilth and free natural drainage, which require neither to be ploughed nor drained.

Group II:—Soils with a tilth which can be improved by ploughing, but which do not require drainage.

(a) Low Rainfall Areas

Third Year Seedling Trials

Plant Canes	Bromefield
First Ratoons	Spencers

Select Seedling Trials

Plant Canes	Coverley

(b) Intermediate Rainfall Areas

Third Year Seedling Trials

Plant Canes	Foursquare and Staple Grove
First Ratoons	Wotton & Oughterson
Second Ratoons	Pickerings

Select Seedling Trials

Plant Canes	Neils & Oughterson

(c) High Rainfall Areas

Third Year Seedling Trials

Plant Canes	Applewhaites & Cottage
First Ratoons	Portland & Easy Hall
Second Ratoons	Kendal

Select Seedling Trials

Plant Canes	Portland & Drax Hall

Group III:—Soils which require to be drained, but are preferably left unploughed.

Group IV:—Soils with a poor natural tilth which can be improved by ploughing, but which require an elaborate system of drainage to maintain their tilth.

(b) Intermediate Rainfall Areas

Third Year Seedling Trials

Plant Canes	.. .. ..	Belle
First Ratoons	.. .. ..	Carrington

Select Seedling Trials

Plant Canes	.. .. ..	Bulkeley

C. Rainfall during the Season

Table X

Month	1929—30 to 1948—49	1949—50	1950—51	1951—52
January	3.08	1.25	6.06	3.45
February	1.57	1.04	1.95	14.35
March	1.48	1.37	2.86	2.28
April	1.97	1.43	1.17	7.50
May	2.80	1.96	6.56	2.07
June	4.51	6.13	10.99	7.39
July	6.98	2.95	3.37	6.03
August	6.44	13.45	10.01	12.89
September	7.51	11.13	7.24	10.86
October	7.49	13.31	13.52	4.37
November	9.12	3.36	11.26	10.80
December	4.40	3.51	4.68	8.65
January	3.06	6.06	3.45	0.65
February	1.51	1.95	14.35	0.58
March	1.51	2.86	2.28	2.64
Totals	63.43	71.76	99.75	94.51

It will be noted from the above table that the rainfall during the normally dry months of the year 1951 was exceptionally heavy. This resulted in severe damage to the fields during the removal of the crop, and to the excessively heavy arrowing, which occurred even in the low rainfall areas. Further, as the soil was never dry, all cultivation work was poor.

The rainfall during 1951 was the highest on record, but ceased abruptly at the end of the year, and for the next twelve weeks was practically nil. This resulted in a condition which may best be described as a forced ripening of the crop, and also stopped the growth of the ratoon fields. Juices were poor, particularly the juice purities, although brixes were fairly high. Rats were very prevalent and, together with the weevil borer, which often follows rat damage, caused considerable losses in nearly all parts of the Island. This damage was particularly unfortunate in the trials, as certain varieties were singled out and, in some cases, certain plots were almost completely destroyed.

Rat and weevil borer damage also contributed to the poor quality of the juice, as damaged and half-rotten canes were often included in loads sent to the factories. In spite of all these unfavourable factors, the equivalent of 167,875 tons of sugar were made, and this proved to be second only to the 1951 crop, which was over 187,000 tons.

D. Results of the Trials

Soil Type:—Group II (a).

TABLE XI

Third Year Seedling Trials — Plant Canes

Bromefield Cut—3rd and 4th March, 1952

VARIETY	Tons Cane per Acre	Z.H.R. Brix	% Sucrose in Juice	No. of Rotten Canes per Plot
B.37161	34.94	21.8	18.5	9
B.4098	35.91	23.1	18.9	8
B.41211	36.05	21.5	19.2	59
B.41227	34.46	22.5	19.4	6
B.4851	30.30	21.4	18.4	4
B.4881	33.41	21.1	17.2	6
B.4888	30.60	21.1	17.8	10
B.48117	30.37	21.8	17.7	7
B.48126	28.46	21.7	19.1	22
B.48177	33.07	21.4	18.5	38
B.48179	33.56	21.3	18.9	11
B.48259	24.20	22.0	19.2	49
B.48330	25.58	21.7	18.9	62
B.48332	28.22	21.5	18.0	8
B.48392	50.66	20.7	18.0	5

A difference of ± 6.18 *tons per acre may be considered significant.*

In this trial, B.48392 significantly outyielded the standards and all other varieties tested. However, the juice quality was relatively poor. None of the other varieties tested gave yields exceeding those given by the standard varieties, B.37161, B.4098, B.41211 and B.41227. Rats did considerable damage to the varieties, B.41211, B.48177, B.48259 and B.48330. B.41227 had the best juice quality, followed by B.41211 and B.48259.

TABLE XII

Third Year Seedling Trials—First Ratoons

Spencers Cut—2nd and 3rd April, 1952

Variety	Tons Cane per Acre			Z. H. R. Brix			% Sucrose in Juice			No. of Rotten Canes per Plot		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161	43.49	34.31	38.90	21.1	22.8	21.9	18.6	20.7	19.6	7	9	8
B.4098	43.55	31.09	37.32	21.8	23.1	22.4	19.0	19.9	19.5	7	4	5
B.41211	47.77	38.26	43.51	21.5	21.2	21.3	18.5	18.4	18.4	5	6	5
B.4466	44.75	34.51	39.63	20.5	21.2	20.8	17.5	18.7	18.1	7	5	6
B.46103	38.00	26.42	32.21	21.5	22.2	21.8	19.0	19.3	19.1	10	10	10
B.4738	44.72	44.08	40.40	21.2	22.2	21.7	17.9	19.9	18.9	12	9	11
B.4743	43.02	33.80	38.41	21.6	21.6	21.6	17.9	18.5	18.2	5	4	4
B.4744	49.53	33.71	41.62	22.4	20.7	21.5	19.6	19.3	19.4	8	6	7
B.4747	47.20	40.73	43.96	21.4	21.3	21.3	18.3	18.6	18.4	15	14	15
B.4764	40.66	33.03	36.84	23.2	23.3	23.2	19.5	19.8	19.6	5	6	5
B.4781	39.71	33.82	36.76	21.0	22.1	21.6	17.5	20.1	18.8	9	8	9
B.4788	46.41	33.30	39.85	22.0	22.5	22.2	18.8	19.7	19.2	6	4	5
B.47135	42.22	33.39	37.80	19.0	21.9	20.4	17.0	19.8	18.4	7	2	4
B.47147	44.30	30.72	37.51	20.6	22.1	21.4	17.6	19.1	18.4	6	5	5
B.47151	37.54	33.75	35.64	20.9	21.7	21.3	17.4	18.6	18.0	12	5	9
B.47162	39.02	34.99	37.00	21.5	22.3	21.9	18.9	19.2	19.0	4	10	7
B.47214	45.74	33.00	39.37	20.2	21.4	20.8	15.9	19.1	17.5	5	4	4
B.47216	46.66	31.01	38.83	19.5	21.4	20.4	16.0	18.6	17.3	7	6	6
B.47217	40.52	29.74	35.13	19.4	21.2	20.3	15.9	18.6	17.2	6	4	5
B.47258	41.25	32.26	36.75	22.3	24.1	23.2	20.0	21.4	20.7	7	3	5
B.47314	38.80	34.69	36.75	21.3	23.1	20.6	19.0	21.1	20.0	3	4	4
B.47379	37.65	31.19	34.42	21.0	21.4	21.2	17.8	18.5	18.1	7	7	7
B.47380	39.05	31.31	35.18	23.6	23.9	22.2	20.2	21.5	20.8	8	4	6
B.47397	41.97	30.04	36.00	20.9	21.4	21.2	17.9	17.7	17.8	10	9	9
B.47419	40.50	32.52	36.51	21.9	22.7	22.3	19.9	20.2	20.0	11	12	11

A difference of $\pm$ 4.04 *tons per acre may be considered significant.*

In considering the results of this trial, it should be stated that a great deal of damage was done in removing the plant cane crop during the very wet reaping season of 1951, and some varieties suffered more from this than others. However, it was not possible to make any accurate survey of the damage, so the results must be treated with due caution.

Of the varieties tested, B.4738 and B.4747 have ratooned remarkably well under the conditions of the trial; B.4738 in particular having excellent field characters as well as a very good juice. It should also be remembered that the rainfall during the year was abnormally high, and whether or not this variety can repeat its performance under normal conditions remains to be seen. B.4744 failed to repeat its excellent performance as a ratoon, but is still third in the average yields for the two crops. The performance of B.41211 in this trial was very good. The juices of B.47380 and B.47258 were outstanding, but it is very doubtful if these varieties will yield sufficiently well to be useful under the low rainfall conditions of Barbados.

Table XIII

Select Seedling Trials—Plant Canes

Coverley Cut—30th January, 1952

Variety	Tons Cane per Acre	Tons Sugar per Acre	% Sucrose in Cane	Quotient of Purity	No. of Rotten Canes per Plot
B.37161	28.66	4.02	14.0	90.6	4
B.4098	28.57	4.16	14.5	89.3	4
B.41211	40.67	5.56	13.7	87.2	1
B.46223	40.45	5.87	14.5	88.2	4
B.46397	41.12	5.93	14.4	88.1	1

A difference of ± 3.26 *tons cane and* ± 0.42 *tons sugar per acre may be considered significant.*

In this trial, B.46397 gave the heaviest yield of cane and sugar, but was not significantly better than B.46223 and B.41211. All of these varieties, however, significantly outyielded B.37161 and B.4098 on cane and sugar. There was no difference between the last two mentioned varieties. B.46223 and B.46397 are now considered to be identical with B.41211.

Soil Type:—Group II (b).

Table XIV

Third Year Seedling Trials—Plant Canes

Foursquare Cut—18th February, 1952

Staple Grove Cut—21st and 22nd February, 1952

Variety	Tons Cane per Acre		Z.H.R. Brix		% Sucrose in Juice		No. of Rotten Canes per Plot	
	Foursquare	Staple Grove	Foursquare	Staple Grove	Foursquare	Staple Grove	Foursquare	Staple Grove
B.37161 ...	33.18	42.64	21.3	20.4	18.9	17.7	5	5
B.4098 ...	34.81	45.87	22.6	21.7	18.6	18.3	2	6
B.41211 ...	41.66	45.20	21.2	20.3	18.7	15.6	6	5
B.41227 ...	37.66	50.64	21.3	20.0	19–3	17.0	1	12
B.4851 ...	34.20	45.66	21.1	19.9	18.5	18.1	5	3
B.4881 ...	27.20	42.52	20.8	19.8	17.1	15.9	5	7
B.4888 ...	27.49	38.42	20.7	20.4	17.4	17.6	5	3
B.48117 ...	29.13	34.55	20.9	20.8	17.4	17.1	2	5
B.48126 ...	29.58	41.81	21.3	21.4	17.7	18.0	4	14
B.48177 ...	34.91	45.38	22.1	20.0	18.8	16.6	9	13
B.48179 ...	31.30	38.08	20.3	20.4	17.5	18.0	4	7
B.48259 ...	32.73	39.44	20.9	18.6	18.4	15.4	3	15
B.48330 ...	35.68	41.63	22.3	20.6	19.8	18.5	6	11
B.48332 ...	27.79	30.98	20.9	20.6	17.7	18.1	2	3
B.48392 ...	46.92	59.44	21.4	19.3	18.0	15.7	3	6

A difference of ± 4.67 *tons cane per acre at Foursquare and* ± 4.49 *tons cane per acre at Staple Grove may be considered significant.*

In these trials, B.48392 significantly outyielded all other varieties tested. However, the juice quality is so poor that it cannot be considered as a commercial variety.

B.41211 gave the next heaviest yield of plant cane at Foursquare followed by B.41227. None of the other varieties outyielded the standards. At Staple Grove, B.41227 gave the second heaviest yield of plant cane, followed by B.4098, B.4851 and B.41211: B.4851 was thin and difficult to clean, and cannot be considered for commercial cultivation.

B.48330 had the best juice quality at both Stations, but the juice figures for the various varieties varied considerably between the trials.

TABLE XV

Third Year Seedling Trials—First Ratoons

Oughterson Cut—25th and 26th February, 1952

Variety	Tons Cane per Acre			Z.H.R. Brix			% Sucrose in Juice			No. of Rotten Canes per Plot		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161	41.72	37.48	39.60	19.7	21.5	20.6	17.6	18.0	17.8	11	4	8
B.4098	43.34	40.38	41.86	21.3	21.5	21.4	18.0	17.5	17.8	4	4	4
B.41211	49.62	38.74	44.18	20.9	20.1	20.5	18.5	17.0	17.8	25	11	18
B.4466	49.75	33.39	41.57	20.0	20.5	20.2	16.8	17.9	17.4	10	1	6
B.46103	42.12	30.24	36.18	19.9	19.9	19.9	17.1	17.3	17.2	9	2	6
B.4738	43.60	37.97	40.78	20.7	20.8	20.7	17.5	18.1	17.8	7	8	8
B.4743	45.80	37.04	41.41	20.4	20.2	20.3	17.4	16.5	16.9	15	1	8
B.4744	58.71	38.19	48.45	21.4	21.4	21.4	18.2	18.3	18.3	13	2	8
B.4747	46.71	42.57	44.64	20.1	19.8	19.9	16.4	16.6	16.5	30	19	25
B.4764	44.77	36.05	40.41	21.3	21.0	21.1	18.3	18.6	18.5	11	2	7
B.4781	40.85	32.73	36.79	20.6	21.4	21.0	17.9	18.3	18.1	13	4	9
B.4788	43.80	38.21	41.00	21.3	21.6	21.4	18.2	18.1	18.2	11	3	7
B.47135	48.20	38.20	43.20	19.4	19.6	19.5	17.6	17.3	17.5	6	1	4
B.47147	43.95	33.98	38.96	20.4	20.0	20.2	17.3	17.1	17.2	6	3	5
B.47151	42.68	34.86	38.77	20.4	20.9	20.6	17.5	17.2	17.4	22	8	15
B.47162	39.96	38.39	39.17	20.4	21.7	20.9	17.3	19.0	18.1	11	3	7
B.47214	44.62	31.50	38.06	19.4	19.0	19.2	16.2	15.6	15.9	11	3	7
B.47216	42.50	31.46	36.98	19.3	19.8	19.5	15.9	15.3	15.6	11	1	6
B.47217	46.51	31.72	39.11	19.7	19.8	19.7	16.4	16.3	16.4	9	3	6
B.47258	42.89	39.81	41.35	21.7	21.6	21.6	18.3	18.7	18.5	9	2	6
B.47314	43.45	38.10	40.77	21.4	22.2	21.8	18.8	18.9	18.9	7	2	5
B.47379	46.78	32.02	39.40	19.8	19.1	19.4	16.5	15.0	15.7	7	1	4
B.47380	42.73	34.27	38.50	21.1	22.5	22.3	19.3	20.3	19.8	11	1	6
B.47397	43.89	31.77	37.83	20.2	19.1	19.6	17.0	16.1	16.5	20	3	12
B.47419	53.08	44.35	48.71	20.2	20.3	20.2	18.2	17.3	17.7	14	6	10

A difference of ± 4.91 *tons cane per acre may be considered significant.*

In this trial, B.47419 gave the heaviest yield of ratoon cane, followed by B.4747 and B.4098. B.4744 gave a slightly heavier yield of ratoon cane than B.37161, but was outyielded although not significantly by B.4098. As this field was rather badly cut up in removing the 1951 crop, it is doubtful if much reliance can be placed on the results, as all of the plots did not receive similar treatment.

Taking the average yield for the two crops, B.47419 and B.4744 gave the heaviest yield of cane, the latter having the better juice quality. B.4747, B.41211 and B.47135 also gave good yields, but except in the case of B.41211, the juice quality was rather poor.

TABLE XVI

Third Year Seedling Trials—First Ratoons

Wotton Cut—13th and 14th March 1952

Variety	Tons Cane per Acre			Z.H.R. Brix			% Sucrose in Juice			No. of Rotten Canes per Plot		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161	43.54	37.93	40.73	21.0	21.8	21.4	17.9	18.0	17.9	14	11	12
B.4098	40.22	35.90	38.06	21.9	22.5	22.2	18.1	19.2	18.6	11	15	13
B.41211	52.88	37.54	45.21	20.5	20.6	20.5	18.1	16.0	17.1	8	15	11
B.4466	44.88	34.46	39.67	20.4	20.9	20.6	17.1	17.1	17.1	6	9	7
B.46103	39.10	31.03	35.06	20.9	21.4	21.1	18.1	18.2	18.2	14	9	11
B.4738	41.33	48.17	44.75	21.1	21.4	21.2	18.1	18 5	18.4	7	8	7
B.4743	39.96	38.74	39.35	20.9	21.3	21.1	16.9	18.0	17.4	8	5	6
B.4744	53.87	41.97	47.92	22.1	22.5	22.3	18.8	18.7	18.2	6	16	11
B.4747	44.56	46.93	45.74	20.5	21.7	21.1	17.3	18.0	17.6	24	17	20
B.4764	41.09	40.13	40.61	21.9	21.1	21.5	18.7	18.6	18.6	6	11	8
B.4781	42.80	39.35	41.07	20.4	22.4	20.4	18.0	18.8	18.5	6	7	6
B.4788	39.71	37.38	38.54	21.4	22.2	21.8	17.8	19.2	18.5	6	11	8
B.47135	42.40	36.99	39.69	19.5	21.3	20.4	15.1	18.5	16.8	7	6	6
B.47147	43.51	31.73	37.62	20.7	21.0	20.8	17.3	17.1	17.2	7	14	11
B.47151	41.55	32.42	36.99	20.7	21.8	21.2	17.8	18.0	17.9	26	9	18
B.47162	41.12	37.11	39.11	21.2	22.6	21.9	17.4	18.8	18.1	11	14	12
B.47214	41.19	32.47	36.83	20.2	20.7	20.4	16.4	16.9	16.6	10	11	11
B.47216	43.57	33.57	38.57	20.2	20.9	20.5	16.5	17.4	16.9	9	9	9
B.47217	39.79	30.22	35.00	19.5	20.9	20.2	15.8	18.7	17.2	12	10	11
B.47258	43.50	36.17	39.83	21.9	22.8	22.4	19.9	19.5	19.7	6	10	8
B.47314	44.90	39.18	42.04	21.0	22.3	21.6	18.7	18.8	18.7	3	7	5
B.47379	37.73	29.26	33.49	20.3	21.2	20.7	15.8	17.6	16.7	7	9	8
B.47380	43.38	34.56	38.97	23.2	23.8	23.5	19.3	20.1	19.7	9	13	11
B.47397	41.19	30.44	35.81	20.6	21.2	20.9	17.6	16.7	17.1	19	11	15
B.47419	51.32	36.54	43.93	20.5	21.5	21.0	18.6	18.2	18.4	16	37	24

A difference of ± 4.93 *tons cane per acre may be considered significant.*

In this trial, B.4738 gave the heaviest yield of ratoon cane followed by B.4747 and B.4744. Of these varieties, B.4738 gave the best juice followed by B.4747. Rat damage in this trial was severe in some of the plots.

Taking the average yields over the two crops, B.4744 has given the heaviest yield of cane followed by B.4747, B.41211, B.4738 and B.47419. B.4738, B.47419 and B.4744 all had good juice qualities. The varieties, B.47258 and B.47380 have given reasonable yields of cane and have outstanding juices.

Table XVII

Third Year Seedling Trials—Second Ratoons

Pickerings Cut — 19th and 29th February 1952

Variety	Tons Cane per Acre				Z.H.R. Brix				% Sucrose in Juice				No. of Rotten Canes per Plot			
	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean
B.37161	38.44	38.56	38.49	38.50	20.5	20.6	21.6	20.9	17.2	17.6	18.8	17.9	5	5	4	5
B.4098	40.61	41.56	40.83	41.00	20.9	21.3	23.0	21.7	18.1	18.5	19.7	18.8	3	10	7	7
B.4502	33.30	29.37	29.46	30.71	20.6	20.8	23.6	21.7	18.6	18.3	20.6	19.2	5	12	5	7
B.4503	38.84	39.06	38.38	38.76	18.6	19.1	20.0	19.2	15.8	15.8	17.1	16.2	4	9	6	6
B.4504	34.62	29.47	37.62	33.90	20.7	20.1	22.4	21.1	17.4	17.6	19.1	18.0	14	61	16	30
B.4506	31.66	30.37	31.58	31.20	19.6	19.9	21.1	20.2	15.9	16.8	18.1	16.9	4	7	10	7
B.4556	31.44	22.18	26.66	26.76	20.2	21.2	22.8	21.4	18.3	19.0	20.5	19.3	26	39	12	26
B.4572	41.24	27.47	25.54	31.42	21.2	21.2	23.3	21.9	18.9	18.6	20.1	19.2	5	18	15	13
B.4596	33.76	33.63	28.79	32.06	19.5	19.7	21.0	20.1	15.6	15.9	18.9	16.8	2	3	2	2
B.45137	33.71	34.13	38.08	35.31	21.3	21.4	23.1	21.9	18.4	18.3	20.9	19.2	7	5	4	5
B.45151	40.99	45.35	45.97	44.10	21.5	21.8	22.5	21.9	19.3	19.6	20.7	19.9	6	10	6	7
B.45152	42.79	42.41	45.77	43.66	20.8	21.6	23.5	22.0	17.7	19.2	20.1	19.0	2	5	2	3
B.4604	38.18	35.15	28.75	34.03	19.9	19.7	20.8	20.1	17.3	16.6	17.7	17.2	7	17	6	10
B.4681	35.08	34.39	31.21	33.56	21.3	21.5	22.9	21.9	17.9	17.9	20.1	18.6	10	30	18	19
B.4691	41.15	44.32	47.33	44.27	19.4	20.1	20.1	19.9	16.8	17.2	17.0	17.0	6	14	11	10
B.46136	33.59	31.99	31.80	32.43	21.3	21.2	23.1	21.9	17.9	17.8	19.9	18.5	3	6	2	4
B.46223	44.66	49.87	48.82	47.78	20.6	21.0	21.8	21.1	17.5	17.0	19.1	17.9	5	12	23	13
B.46232	33.83	34.21	36.25	34.76	18.2	19.1	20.1	19.1	15.1	16.2	18.0	16.4	3	11	6	7
B.46284	37.34	32.13	29.40	32.96	20.7	21.2	21.9	21.3	17.3	18.1	18.8	18.1	4	9	6	6
B.46288	35.61	35.68	30.73	34.01	19.5	21.2	22.2	21.0	17.1	18.2	19.5	18.3	12	16	12	13
B.46364	35.79	45.25	41.74	40.93	20.3	20.5	21.3	20.7	18.0	17.7	19.0	18.2	2	3	2	2
B.46394	29.10	32.72	31.07	30.96	21.1	21.6	23.9	22.2	18.5	18.9	19.9	19.1	4	10	4	6
B.46397	47.76	49.55	44.00	47.10	20.3	20.4	21.1	20.6	16.8	16.3	18.0	17.0	6	9	39	18
S.45	39.43	30.36	30.98	33.59	20.2	20.7	22.1	21.0	17.4	16.9	18.0	17.4	3	8	6	6

A difference of ± 5.20 tons per acre between mean yields of the second ratoon crop may be considered significant.

In this trial, B.46223 gave the heaviest yield of ratoon cane, but did not significantly outyield B.4691, B.45151, B.45152 and B.46397. B.45137 gave the best juice quality, closely followed by B.45151 and B.4503. Taking the average yields for the three crops, B.46223 gave the heaviest yield of cane followed by B.46397, B.4691, B.45151, B.45152 and B.4098. B.45151 gave juice with the highest sucrose content followed by B.4556, B.4572 and B.45152. The juices of B.46223, B.46397 and B.4691 were fair only. B.4691 has given uncertain results in the trials, being very good in some places and very poor in others. Experience has shown that such varieties should be eliminated as soon as possible. B. 45151 is not normally recommended for this ecological area, as in dry years it is liable to be very thin. However, it has performed exceptionally well under the conditions of this trial.

TABLE XVIII

Select Seedling Trials—Plant Canes

Neils Cut—27th February 1952

Oughterson Cut—10th March, 1952

VARIETY	Tons Cane per Acre		Tons Sugar per Acre		% Sucrose in Cane		Quotient of Purity		No. of Rotten Canes per Plot	
	Neils	Oughterson	Neils	Oughterson	Neils	Oughterson	Neils	Oughterson	Neils	Oughterson
B.37161 ...	38.99	40.68	5.59	6.30	14.3	15.5	89.4	90.5	28	15
B.4098 ...	39.42	44.34	6.07	6.78	15.4	15.3	87.5	86.4	11	12
B.41211 ...	45.55	49.58	6.66	7.36	14.6	14.8	86.6	84.4	35	20
B.46223 ...	46.35	49.06	7.02	7.38	15.1	15.0	87.5	84.6	51	20
B.46397 ...	47.90	46.87	6.88	6.87	14.4	14.6	86.0	83.9	54	19

The following differences between mean yields may be considered significant :—
Neils ± 2.95 tons cane per acre & ± 0.42 tons sugar per acre
Oughterson ± Insignificant & ± Insignificant

In these trials, B.41211, B.46223 and B.46397 outyielded B.37161 and B.4098 on cane and sugar. The results were significant at Neils, but not significant at Oughterson. B.4098 had the best juice quality and B.37161 the poorest at Neils, while at Oughterson, B.37161 gave the best juice and B.46397 the poorest. As B.41211, B.46223 and B.46397 are now considered to be the same variety, it is not likely that these trials will be taken any further.

Soil Type:—Group II (c) High Rainfall

TABLE XIX

Third Year Seedling Trials—Plant Canes

Applewhaites Cut—19th and 20th March, 1952

Cottage Cut—31st March and 1st April, 1952

VARIETY	Tons Cane per Acre		Z.H.R. Brix		% Sucrose in Juice		No. of Rotten Canes per Plot	
	Applewhaites	Cottage	Applewhaites	Cottage	Applewhaites	Cottage	Applewhaites	Cottage
B.37161 ...	37.59	39.88	20.8	21.0	18.2	18.5	30	34
B.4098 ...	42.89	39.81	21.2	21.4	18.0	19.0	16	30
B.41211 ...	39.80	37.79	21.5	21.0	16.1	17.9	15	18
B.41227 ...	46.16	45.65	20.3	21.1	17.3	18.2	35	29
B.4851 ...	43.63	46.22	21.5	21.4	17.8	18.8	14	23
B.4881 ...	42–06	43.16	20.0	20.7	16.5	17.2	15	21
B.4888 ...	34.60	36.96	21.0	21.3	18.4	18.4	26	19
B.48117 ...	37.75	38.02	21.2	21.4	18.3	19.1	27	8
B.48126 ...	40.05	40.74	20.8	20.9	17.8	17.3	34	20
B.48177 ...	33.57	39.89	20.1	20.8	16.0	17.0	77	39
B.48179 ...	32.59	35.61	21.7	21.1	18.5	18.2	22	23
B.48259 ...	31.75	34.38	20.0	20.8	15.1	15.9	27	38
B.48330 ...	36.94	31.61	22.4	21.5	20.4	19.1	56	91
B.48332 ...	39.01	41.12	21.4	21.4	17.9	18.6	13	13
B.48392 ...	59.80	55.40	19.8	17.9	14.0	14.0	15	41

The following differences between mean yields may be considered significant:—
Applewhaites ± 5.64 tons cane per acre
Cottage ± 4.55 tons cane per acre

In both trials, B.48392 greatly and significantly outyielded all other varieties tested. However, the juice quality was so poor that it cannot be considered for commercial purposes. None of the other varieties gave yields heavier than the standard variety, B.41227, except B.4851 at Cottage, and here the difference between the mean yields of these varieties was not significant. Further, B.4851 is thin and very difficult to clean although it has quite a good juice.

TABLE XX

Third Year Seedling Trials—First Ratoons

Portland Cut—17th and 18th March 1952

Variety	Tons Cane per Acre			Z.H.R. Brix			% Sucrose in Juice			No. of Rotten Canes per Plot		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161	46.71	39.10	42.91	18.2	20.4	19.3	14.7	18.1	16.4	15	32	24
B.4098	50.91	40.03	45.47	19 4	20.5	20.0	16.4	18.9	17.7	14	34	24
B.41211	43.97	22.72	33.35	19.0	21.4	20.2	15 8	16 7	16 3	61	176	119
B.4466	51.72	51.36	51.54	18.0	21.4	19.7	16.0	19.2	17.6	12	14	13
B.46103	51.16	46.53	48.85	18.2	21.0	19.6	15.6	18.6	17.1	12	29	21
B.4738	50.34	46.66	48.50	18.7	21.7	20.2	15.5	19.5	17.5	11	21	16
B.4743	47.78	46.50	47.14	18.7	20.8	19.8	15.4	15.7	15.6	8	23	16
B.4744	54.42	55.64	55.03	18.3	20.7	19.5	15.5	17.3	16.4	14	55	35
B.4747	54.63	47.37	51.00	18.3	20.4	19.4	14.9	16.8	15.9	20	86	53
B.4764	45.45	47.87	46.66	17.5	22.2	19.9	14.0	17.9	16.0	24	18	21
B.4781	52.92	42.50	47.71	19.0	20.8	19.9	16.9	17.5	17.2	13	29	21
B.4788	50.99	49.47	50.23	19.1	21.1	20.1	15.4	17.0	16.2	11	42	27
B.47135	56.28	52.32	54.30	17.3	20.9	19.1	14.9	15.6	15.3	12	37	25
B.47147	54.00	42.65	48.33	19.1	21.3	20.2	14.7	18.7	16.7	20	46	33
B.47151	47.19	48.56	47.86	18.0	19.3	18.7	15.5	16.9	16.2	13	34	24
B.47162	48.37	37.47	42.92	18.8	20.2	19.5	15.6	14.9	15.3	9	42	26
B.47214	56.54	36.94	46.74	18.7	19.6	19.2	14.7	19.9	17.3	20	35	28
B.47216	41.12	38.77	39.95	17.0	19.7	18.4	13.1	15.0	14.1	14	36	25
B.47217	44.36	35.77	40.07	17.2	20.8	19.0	13.3	17.7	15.5	19	42	31
B.47258	35.59	26.92	31.26	18.8	22.0	20.4	15.8	19.2	17.5	34	103	69
B.47314	49.53	51.09	50.31	18.7	22.1	20.4	15.4	16.7	16.1	10	9	10
B.47379	44.87	44.86	44.87	17.9	21.0	19.5	14.4	17.3	15.9	15	23	19
B.47380	48.22	32.39	40.31	20.2	22.6	21.4	17.1	19.8	18.5	17	44	31
B.47397	51.82	42.14	46.98	18.8	19.9	19.4	15.2	13.4	14.3	14	27	21
B.47419	54.36	40.28	47.32	17.7	20.0	18.9	15.4	16.8	16.1	25	103	64

A difference of ± 6.93 *tons cane per acre may be considered significant.*

In this trial, rat and weevil borer damage was very severe, and it is estimated that approximately 20 tons of cane per acre were lost through these pests. Further, all varieties were not damaged to an equal extent so that the results have to be regarded with some suspicion. B.4744 gave the heaviest yield of ratoon cane followed by B.47135, B.47314, B.4747 and B.4788, all of which gave over fifty tons of cane per acre and significantly outyielded the standard varieties, B.37161 and B.4098. The other standard, B.41211, was very severely damaged by rats and weevil borer. Taking the yield figures from both crops, B.4744 has given the heaviest yield of cane over the two crops, closely followed by B.47135, B.4747, B.47314 and B.4788, all of which have averaged over fifty tons of cane per acre. The juice qualities in both trials were relatively poor, but B.47380, B.4738, B.4466 and B.47258 were out standing.

TABLE XXI

Third Year Seedling Trials—First Ratoons

Easy Hall Cut—8th and 9th April, 1952

Variety	Tons Cane per Acre			Z.H.R. Brix			% Sucrose in Juice			No. of Rotten Canes per Plot		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161	45.60	38.24	41.92	18.3	21.8	20.0	15.4	18.4	16.9	11	18	10
B.4098	47.78	39.57	43.67	19.0	21.2	20.1	16.2	18.2	17.2	8	26	17
B.41211	56.73	39.49	48.11	18.8	21.2	20.0	13.7	17.6	15.6	23	83	53
B.4466	49.15	42.82	45.98	19.0	21.2	20.1	15.7	19.2	17.4	8	15	12
B.46103	43.97	35.90	39.92	19.3	21.6	20.4	16.6	18.3	17.4	10	37	24
B.4738	47.29	46.02	46.65	18.5	21.1	19.8	16.2	18·1	17.1	9	23	16
B.4743	49.14	43.56	46.35	18.4	20.0	19.2	15.1	17.3	16.2	7	22	14
B.4744	76.05	53.11	64.58	19.5	21.3	20.4	16.5	17.7	17.1	12	28	20
B.4747	51.03	45.01	48.02	18.6	20.2	19.4	15.9	18.1	17.0	14	44	29
B.4781	53.64	41.32	47.48	18.5	21.9	20.2	15.7	19.3	17.5	11	22	16
B.4788	45.63	37.85	41.79	18.3	20.9	19.6	16.2	18.3	17.3	11	38	25
B.47135	58.30	43.78	51.04	17.4	20.7	19.0	12.9	18.4	15.6	8	50	29
B.47151	52.74	46.25	49.49	18.9	20.7	19.8	15.7	17.1	16.4	23	16	19
B.47162	52.03	44.39	48.21	18.0	21.7	19.8	15.4	19.5	17.4	9	24	16
B.47204	53.42	44.87	49.14	18.0	18.3	18.1	14.9	16.7	15.8	20	27	24
B.47214	45.01	28.65	36.83	17.7	20.2	18.9	13.7	17.0	15.4	18	47	32
B.47216	53.67	36.55	45.11	17.2	20.1	18.6	12.5	16.6	14.5	12	32	22
B.47217	52.40	32.00	42.20	17.5	20.4	18.9	14.1	16.3	15.2	18	44	31
B.47283	48.03	32.72	40.37	19.0	20.5	19.7	15.1	18.2	16.6	15	43	29
B.47258	53.07	43.77	48.42	19.2	22.4	20.8	16.8	20.0	18.4	9	17	13
B.47314	50.38	50.82	50.60	19.1	21.8	20.4	17.1	18.6	17.8	7	9	8
B.47379	59.35	39.18	49.26	19.0	20.9	19.9	15.8	18.0	16.9	8	20	14
B.47380	49.51	33.36	41.43	20.1	23.1	21.6	17.6	19.9	18.7	7	52	30
B.47397	51.88	36.97	44.42	18.8	19.4	19.1	15.3	15.6	15.4	15	36	25
B.47419	65.39	46.12	55.75	18.7	21.7	20.2	16.4	19.1	17.8	16	35	26

A difference of ± 6.03 *tons cane per acre may be considered significant.*

This trial may be regarded as one of the most reliable of the Third Year Seedling First Ratoon Trials. It was cut and the canes were removed during a fairly dry spell in the 1951 crop season, and very little damage was done in removing the canes. Rats and weevil borers were present, but damage was not as severe as that found at Portland. B.4744 gave the heaviest yield of ratoon cane but the juice quality of the samples taken was not up to those of the standard varieties, B.37161 and B.4098. However, taking the average quality over the two crops, it was better than B.37161 and nearly on a par with B.4098. B. 47314 also gave a good yield of ratoon cane and has a good juice, but this variety has a very high fibre content and is consequently very difficult to cut. Taking the results of the two crops, B.4744 outyielded all other varieties. It was followed by B.47419, B.47135 and B.47314. B.47258 and B.47380 gave a reasonable yield of ratoon cane and have an excellent juice. One of these might find a place as an early ripener in the high rainfall areas.

Table XXII.

Third Year Seedling Trials

Second Ratoons

Kendal Cut—15th & 16th April, 1952

Variety	Tons Cane per Acre				Z.H.R. Brix				% Sucrose in Juice				No. of Rotten Canes per Plot			
	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean
B.37161	44.71	53.89	45.77	48.12	22.0	20.8	20.9	21.2	18.9	17.1	19.1	18.4	7	12	17	12
B.4098	46.17	51.56	45.87	47.87	22.9	21.2	21.2	21.8	19.2	18.4	17.8	18.5	13	8	20	14
B.4502	41.60	42.40	28.08	37.36	23.2	21.5	22.7	22.5	19.9	18.2	19.7	19.3	18	16	56	30
B.4503	39.78	51.15	37.65	42.86	21.1	18.6	20.0	19.9	18.2	15.8	18.1	17.4	11	13	25	16
B.4504	41.21	51.61	40.00	44.27	22.7	19.7	20.9	21.1	18.9	15.9	18.1	17.6	19	10	23	17
B.4506	39.26	46.53	30 30	38.70	21.2	18.8	20.4	20.1	18.4	16.4	18.5	17.8	10	12	31	18
B.4556	41.87	42.86	21.50	35.41	21.8	20.5	20.7	21.0	18.8	17.7	18.6	18.4	22	17	56	32
B.4572	45.26	41.87	22.25	36 46	23.2	20 6	21.1	21.6	19.9	18.4	17.8	18.7	6	10	32	16
B.4596	49.32	55.32	47.51	50.72	21.6	18.6	19.8	20.0	18.1	16.7	17.7	17.5	11	20	19	17
B.45137	39.25	51.39	49.90	46.85	23.1	20.0	21.2	21.4	20.7	18.4	19.5	19.5	20	15	13	16
B.45151	50.69	61.14	48.53	53.45	22.1	21.3	22.3	21.9	21.7	18.4	19.4	19.8	10	7	28	15
B.45152	51.67	56.34	45.58	51.20	23.0	20.5	21.6	21.7	20.7	18.2	19.8	19.6	6	8	7	7
B.4606	52.14	56.75	38.77	49.22	21.6	19.5	20.7	20.6	19.0	17.2	18.1	18.1	10	6	27	14
B.4681	50.68	54.39	14.84	39.97	22.3	20.4	21.3	21.3	19.6	18.3	18.1	18.7	32	24	194	83
B.4691	31.21	55.83	30.54	39.19	21.7	19.3	20.7	20.6	19.1	16.4	17.7	17.7	9	8	87	35
B.46102	49.56	50.21	47.01	38.93	21.5	19.9	20.7	20.7	18.7	16.1	18.6	17.8	10	16	11	12
B.46136	45.44	52.72	43.96	47.37	22.5	20.5	21.1	21.4	19.3	17.6	18.1	18.3	7	9	17	11
B.46223	53.44	62.12	46.69	54.08	22.3	20.6	21.6	21.5	18.8	17.7	17.0	17.8	9	31	53	31
B.46232	39.56	43.16	37.81	40.18	19.7	18.2	19.4	19.1	17.7	15.3	18.0	17.0	11	18	22	17
B.46284	37.75	39.67	29.48	35.63	22.4	19.9	21.8	21.4	19.2	16.8	19.2	18.4	9	7	18	11
B.46288	34.65	46.14	37.87	39.55	22.0	19.8	21.1	23.0	19.7	16.4	19.1	18.4	13	13	9	12
B.46364	46.41	57.52	54.57	52.83	22.5	20.1	21.0	21.2	20.2	18.0	18.7	19.0	6	6	9	7
B.46394	25.20	39.06	35.59	33.28	21.7	20.5	22.4	21.5	19.3	18.1	19.4	18.9	9	8	18	12
S.45	44.99	38.17	28.76	37.31	22.0	20.4	20.8	21.1	18.0	17.4	17.5	17.6	12	12	23	16

A difference of ± 5.45 tons cane per acre may be considered significant.

In this trial, B.46364 gave the heaviest yield of ratoon cane and was significantly better than all other varieties tried with the exception of B.45137. B.45151, B.4596, B.46102 and B.46223 also gave yields exceeding those given by the standard varieties, B.37161 and B.4098. Taking the results of the three crops, B.46223 has given the heaviest yield of cane, followed closely by B.45151, B.46364, B.45152 and B.4596. B.45151 has given the best quality juice followed by B.45152, B.45137, B.4502 and B.46364. B.45151 performed exceptionally well and has been distributed to planters in the high rainfall areas for early and mid-crop reaping. B.46364 has also done well and has been sent on to Select Seedling Trials as a possible variety for reaping from mid-crop on. In addition to its other qualities, B.46364 is almost self-trashing, and gives a very heavy fall of trash.

TABLE XXIII.

Select Seedling Trials—Plant Canes

Portland Cut—5th March, 1952

Drax Hall Cut—5th April, 1952

Variety	Tons Cane per Acre		Tons Sugar per Acre		% Sucrose in Cane		Quotient of Purity		No. of Rotten Canes per Plot	
	Portland	Drax Hall	Portland	Drax Hall	Portland	Drax Hall	Portland	Drax Hall	Portland	Drax Hall
B.37161	42.64	46.67	6.37	7.13	14.9	15.3	89.0	91.6	15	36
B.4098	42.95	45.29	6.41	7.07	14.9	15.2	84.5	89.7	12	29
B.41211	46.16	48.03	6.70	7.28	14.5	15.1	83.5	89.9	58	62
B.46223	48.80	51.98	7.26	7.91	16.1	15.2	83.7	89.2	62	89
B.46397	45.92	49.26	6.66	7.29	14.5	14.8	83.4	89.2	69	89

The differences between mean yields of cane and sugar at Drax Hall and sugar at Portland were insignificant.

At Portland a difference of ± 4.31 tons cane per acre may be considered significant.

At both centres, B.41211, B.46223 and B.46397 outyielded B.37161 and B.4098 on cane and sugar, but only B.46223 proved to be significantly better than B.37161 and B.4098 at Portland. Rat and weevil borer damage was fairly severe on B.41211, B.46223 and B.46397 at both centres and this is reflected in the number of rotten canes found. The juices of all varieties at both centres were relatively poor, although that of B.46223 appeared to be better than the others at Portland.

Group IV—Soils (b) Intermediate Rainfall:

TABLE XXIV.

Third Year Seedling Trials—First Ratoons
Belle Cut—28th February, 1952

VARIETY	Tons Cane per Acre	Z. H. R. Brix	% Sucrose in Juice	No. of Rotten Canes per Plot
B.37161	40.90	17.4	18.8	7
B.4098	47.86	21.3	18.9	7
B.41211	45.77	19.9	18.5	8
B.41227	46.48	20.3	18.0	9
B.4851	46.26	20.4	18.8	4
B.4881	43.89	19.0	15.3	8
B.4888	45.22	20.6	16.7	4
B.48117	38.46	21.2	16.7	6
B.48126	39.46	19.8	16.6	5
B.48177	45.65	20.3	16.6	24
B.48179	39.24	19.8	17.4	4
B.48259	41.77	19.2	17.8	23
B.48330	43.03	20.9	18.1	38
B.48332	42.80	20.1	17.6	4
B.48392	62.29	19.1	16.2	3

A difference of ± 4.71 tons cane per acre may be considered significant.

In this trial, B.48392 greatly and significantly outyielded all other varieties tried. However, the juice quality was so poor that it cannot be considered for commercial planting. None of the other varieties tried gave yields exceeding those given by the standard varieties, B.4098 and B.41227.

TABLE XXV.

Third Year Seedling Trials—First Ratoons

Carrington Cut—11th & 12th March, 1952

Variety	Tons Cane per Acre			Z.H.R. Brix			% Sucrose in Juice			No. of Rotten Canes per Plot		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161	47.01	41.43	44.22	20.1	20.7	20.4	16.7	17.7	17.2	15	10	13
B.4098	47.86	40.33	44.09	22.6	22.3	22.4	19.4	18.9	19.1	6	8	7
B.41211	36.50	43.26	39.88	21.3	19.6	20.4	17.9	16.5	17.2	96	7	52
B.4466	48.06	31.26	39.66	19.9	21.1	20.5	16.7	17.4	17.0	14	9	12
B.4603	47.84	32.09	39.96	20.7	20.6	20.6	17.9	17.5	17.7	13	3	8
B.4738	45.79	46.08	45.93	21.1	20.6	20.9	18.9	17.8	18.3	15	4	9
B.4743	45.30	33.71	44.00	21.1	20.8	20.9	17.9	18.0	18.0	13	3	8
B.4744	55.35	41.36	48.35	22.0	22.3	22.1	19.3	19.1	19.2	11	5	8
B.4747	39.10	44.59	41.84	21.2	20.5	20.9	19.1	18.3	18.7	64	9	36
B.4764	45.20	35.60	40.40	22.3	21.8	22.0	19.1	18.3	18.7	11	5	8
B.4781	46.40	33.56	39.98	21.2	21.6	21.4	17.4	18.7	18.0	18	4	11
B.4788	46.26	36.92	41.59	22.5	21.8	22.1	19.3	17.6	18.4	7	3	5
B.47135	50.96	41.74	46.35	19.6	20.2	19.9	17.1	17.4	17 3	8	4	6
B.47147	39.92	34.09	37.00	20.0	21.0	20.5	17.2	17.3	17.3	35	4	14
B.47151	39.66	33.89	36.77	20.0	20.2	20.1	17.6	17.8	17.7	23	9	16
B.47162	44.13	37.79	40.96	20.9	21.4	21.1	17.1	18.7	17.9	36	2	19
B.47214	45.73	29.74	37.73	20.0	20.8	20.4	17.0	17.7	17.4	11	7	9
B.47216	48.09	31.21	39.65	19.9	21.3	20.6	17.0	18.0	17.5	16	5	11
B.47217	43.31	28.17	35.74	19.3	20.9	20.1	15.8	17.8	16.8	16	8	12
B.47258	45.68	36.48	41.08	22.2	22.1	22.1	19.7	19.1	19.4	11	3	7
B.47314	42.95	34.61	38.78	21.7	21.8	21.7	19.1	19.0	19.1	9	4	6
B.47379	45.87	32.48	39.17	20.5	20.2	20.3	16.8	17.4	17.1	9	6	7
B.47380	38.37	34.48	36.42	22.6	23.3	22.9	20.2	19.0	19.6	12	4	8
B.47397	44.68	34.28	39.48	20.8	19.9	20.3	16.9	16.0	16.4	20	7	14
B.47419	51.88	40.75	46.31	21.4	20.2	20.8	19.0	17.4	18.2	19	10	14

A difference of ± 3.98 tons cane per acre may be considered significant.

This trial was badly cut up in removing the canes during the wet 1951 crop. However, the plots came back exceptionally well, and yields were much heavier than was expected. B.4738 gave the heaviest yield of ratoon cane and was significantly better than the standards, B.37161 and B.4098. B.4747 gave the next heaviest yield of ratoon cane followed by B.41211. B.4744, B.47135 and B.47419 also gave cane yields comparable with those given by the standards. Taking the results of the two crops, B.4744 gave the heaviest yield of cane followed by B.47135, B.47419 and B.4738. As usual, B.47380 gave the best quality juice followed by B.47258, B.4744, B.4098 and B.47314.

TABLE XXVI.

Select Seedling Trials—Plant Canes

Bulkeley Cut—7th April, 1952

VARIETY	Tons Cane per Acre	Tons Sugar per Acre	% Sucrose in Cane	Quotient of Purity	No. of Rotten Canes per Plot
B.37161	60.39	9.69	16.1	92.1	15
B.4098	58.66	9.50	16.2	88.4	9
B.41211	55.04	8.71	15.8	90.8	80
B.46223	52.19	8.30	15.9	90.0	99
B.46397	55.31	8.55	15.5	90.2	86

The differences between the mean yields of cane and sugar at Bulkeley cannot be shown to be statistically different.

In this trial, B.37161 gave the heaviest yield of plant cane followed by B.4098. However, the differences between the mean yields of cane and sugar cannot be shown to be significant. B.41211, B.46223 and B.46397 all suffered heavily from rat and weevil borer damage and this is reflected in the number of rotten canes found. B.4098 gave the best juice quality closely followed by B.37161. B.46397 had the poorest juice.

SUMMARY

In the Third Year Seedling Trials, B.48392 gave very heavy yields of plant cane, but the juice quality was so poor that it cannot be considered for commercial purposes. None of the other seedlings of the B.48′ Series proved to be as good as the standard varieties, B.37161, B.4098, B.41211 and B.41227. In the First Ratoon Trials, B.4738 and B.4747 yielded well as ratoons in the low and intermediate rainfall areas, but B.4744 still maintained the lead on the average of the two crops. The juice qualities of B.4738 and B.4744 were good, but the juice of B.4747 was variable and inclined to be poor. B.47258 and B.47380 had outstanding juices, but it is doubtful if the cane yield of these varieties would be high enough in an average year to make them worthwhile. In the high rainfall areas, B.4744 and, to a lesser extent, B.47419 maintained their early promise and produced heavy ratoon crops of good quality. B.47314 also gave heavy yields of cane of good quality, but the canes are very fibrous and so difficult to cut. B.4738 gave good yields of cane of very good quality, but this variety flowers too freely in the high rainfall areas to be at its best. B.47258 and B.47380 gave fairly good yields of cane and have very high sucrose contents. One of these may find a place in the high rainfall areas as a variety for early reaping.

In the second ratoon trials, B.45151 performed very well. It is a thin cane which sheds its trash readily and has an excellent juice. It has been issued to planters in the high rainfall areas and, although the juice quality will undoubtedly be better than the juice qualities of the existing standard varieties at the start of the crop, B.45151 will not really be at its best until the end of April. It is capable of giving very heavy yields of plant and ratoon cane, and does not flower to the same extent as the existing standard varieties. B.46364 is another variety which has done very well in the high rainfall areas. It is a thick, red cane which is almost self trashing, and has an excellent juice when ripe. It appears to ripen rather late in the crop, and the canes in the trials cut have been very sound. This variety is being taken to the Select Seedling Trial Stage.

In the Select Seedling Trials, generally speaking, B.41211, B.46223 and B.46397 have outyielded B.37161 and B.4098 except on the Group IV soils of the Bulkeley Valley, where they were heavily damaged by rats and weevil borer. B.46223 and B.46397 are now considered to be the same as B.41211, so these trials will not be taken any further.

II. DESPATCH OF SEEDLINGS TO CONTRIBUTING COLONIES

Cuttings of varieties of the B.48' Series were sent to the various contributing Colonies in October, 1951. The varieties and the Colonies to which they were sent are listed below:—

Antigua & St. Kitts ..	B.4906, B.4942, B.4956, B.4966, B.49122, B.49166, B.49186, B.49198, B.49229, B.49257, B.49301, B.49309, B.49311, B.49346, B.49353, B.49355 and B.49376.

In addition to the above, B.49377, B.49378 and B.49380 were sent to Antigua.

Trinidad & British Guiana	B.4906, B.4942, B.4956, B.4966, B.4995, B.49122, B.49166, B.49186, B.49197, B.49198, B.49229, B.49257, B.49301, B.49309, B.49311, B.49346, B.49353, B.49354, B.49355, B.49376, B.49377, B.49378, B.49380 and B.49388.

In addition to the above, B.4744 was sent to Trinidad and B.s.4705, B.s.4945 and B.s.4968 were sent to British Guiana.

Jamaica	B.49166, B.49186, B.49197, B.49198, B.49229, B.49281, B.49309, B.49311, B49346, B.49353, B.49354, B.49355, B.49376, B.49377, B.49396, B.49397 and B.49399.

In addition, cuttings of 510 seedlings taken from the Nursery and seed from 21 crosses were sent to Jamaica.

Grenada	B.4744 and B.47419.
British Honduras ..	B.42231, B.4362, B.45151 and B.45152.
Dominica	B.4744 and B.47419.
St. Vincent	B.4744 and B.47419.
St. Lucia	B.4744.

In addition to the above, the following varieties were sent to foreign countries:—

Cyprus	B.34104, B.37161, B.4098, B.41211 and B.41227.
Dominican Republic ..	B.45151, B.4738, B.4744, B.4747 and B.47419.
Guadeloupe	B.43391 and B.47419.
Venezuela	B.4504, B.45151, B.45152, B.4604, B.4681, B.46136, B.4738, B.4744, B.4747 and B.47419.
United States of America	B.35197, B.35274, B.39274, B.35276, B.37261, B.37226, B.35269, B.45285, B.3354, B.35207, B.35218, B.40272, B.4454, B.4455, B(30)L.7, B.34102, B.38272, B.49254, B.41242, B.4327, B.43375, B.43380, B.44167, B.44261, B.4524, B.4543, B.45111, B.45116, B.45151, B.45181, B.45211, B.46199, B.47183, B.46136 and B.49281

III. PERFORMANCE OF VARIETIES IN CONTRIBUTING COLONIES

Barbados

The cane acreage was still dominated by B.37161, which continued to give a very satisfactory all-round performance. The percentage under this variety is, however, now decreasing steadily, and it represented only 80.06 percent. of the acreage for the 1952 crop, compared with the maximum figure of 92.76 percent. for the crop of 1949. The reduced acreage is accounted for mainly by increased plantings of B.41211, B.4098 and B.41227.

B.41211 again gave exceptional cane tonnages, and generally outyielded B.37161 in sugar per acre. In spite of this, certain factories purchasing cane by the ton are reluctant to encourage its increased planting, on the ground that it is frequently lower in juice quality than B.37161. As in previous years, conflicting reports on the juice quality of B.41211 were received, but it can be stated that where ripening conditions are good, and if not cut before maturity, the variety is satisfactory in this respect.

B.4098 is best suited to low and intermediate elevations with moderate to good rainfall, and B.41227 to the intermediate and high rainfall areas. Both varieties arrow heavily where conditions are suitable.

Two promising new varieties, B.4744 and B.47419, were distributed to plantations during the year for multiplication and trial under commercial conditions.

Major variety percent. acreage figures for the 1951 and 1952 crops were as follows:—

	1951	1952
B.37161	84.76	80.06
B.41211	6.58	9.74
B.4098	5.82	6.87
B.41227	0.76	0.89
B.43391	0.73	1.28

Jamaica

B.34104, the major estate variety, continued to decrease steadily, representing only 50% of the area for the 1952 crop. The reduction in its acreage is accounted for largely by increased plantings of the Mosaic-resistant varieties, B.4362, B.41227 and B.42231, all of which are now in large-scale commercial plantings, and are giving very promising results.

B.3439 maintained its acreage, and continues to find favour on the North Coast estates and under irrigation in the dry areas, where it gives good tonnages and high juice quality.

B.37172 dominates the wet East Coast area, where it gives heavy tonnages with good juice quality under unfavourable ripening conditions, and remains sound to the end of the crop season. In some recent trials it has, however, been outyielded by B.4362.

The major variety percent. acreage figures for the 1951 and 1952 crop were as follows:—

	1951	1952
B.34104	54	50
B.3439	21	21
B.37172	7	7
B.37161	6	7
B.42231	—	2
B.41227	—	1
B.4362	—	1

Trinidad

There was a further small increase in the area under B.3337, which is the major variety of the island and dominates the northern and central cane areas. It is particularly well suited there, but is not grown to any appreciable extent elsewhere in the Caribbean.

B.34104, the major variety of the island until 1950, continued to decrease in area grown and is being rapidly superseded, mainly by B.37161 and B.37172. Both these varieties are now widely grown and have given good results.

B.41227, after a series of trials in which it gave promising results, has now taken its place as a commercial variety, and is likely to be considerably extended.

In the case of Trinidad, where cane growing areas differ so markedly in environment, variety per cent. figures on an island basis can have only general significance. For instance, on the undulating soils to the south, the major variety of the island, B.3337, is little grown. The figures for the 1951 and 1952 crops are as follows:—

	1951	1952
B.3337	36.94	40.67
B.34104	27.20	24.07
B.37161	18.77	19.39
B.37172	11.29	11.55
B.4098	1.46	1.91
B.H.10(12)	1.40	1.44
B.41227	0.49	0.97

British Guiana

Rapid changes in the variety position in British Guiana are taking place since the recognition of the susceptibility of the major variety, B.34104, to Leaf Scald disease. It is felt that, although B.34104 continues to yield well in spite of heavy attack by the disease, its replacement by more resistant varieties is desirable, particularly if the alternative varieties are its equal or superior in sugar yield. It is being replaced at present largely by B.41227, which has given excellent results commercially, and is appreciably more resistant to Leaf Scald. New plantings are being made, so far as is possible, from clean planting material secured by careful rogueing of seed nurseries.

The Demerara seedling D.14/34, which occupied more than 20% of the cane area in 1950, has decreased almost to the point of insignificance, and is now little planted.

Another Barbados variety which is being rapidly extended is B.37161. It has found favour particularly on the lighter river-bank soils, but also gives good results on both clay and pegasse, thus behaving in British Guiana as elsewhere in the Caribbean area, as a good general-purpose variety. B.37161 shows considerably greater resistance to Leaf Scald disease than does B.34104.

B.4098, which is as yet planted on a very limited scale, has shown promise and is being extended. It is highly resistant or immune to Leaf Scald.

The Coimbatore varieties, Co.419 and Co.421, are rapidly disappearing from cultivation.

Variety percent. acreage figures for the 1951 and 1952 crops were as follows:—

	1951	1952
B.34104	67.4	60.2
B.41227	3.8	12.7
B.37161	3.6	9.4
D.14/34	15.0	8.6
Co.421	3.5	2.1
Co.419	2.7	1.7

Antigua

B.4098, still the major variety of Antigua, showed a slight decrease in acreage for the 1952 crop, which was largely compensated by an increased area under B.37161. Nowhere else in the Caribbean area is the variety B.4098 so extensively grown as in Antigua. It is probable that the reduced acreage is due to the recognition, following experiences in the 1950 hurricane, that B.37161 is considerably more resistant than B.4098 to damage by high winds.

B.37172 showed a slight increase in acreage due to its extension particularly in the Blubber Valley district, and the older varieties B.3439 and B.34104 appear to be going gradually out of cultivation.

Variety percent. acreages for the 1951 and 1952 crops were as follows:—

	1951	1952
B.4098	67.13	64.58
B.37161	19.34	24.81
B.37172	2.02	4.00
B.3439	7.00	3.54
B.34104	3.59	2.75

St. Kitts

Once again, the variety position in St. Kitts has closely followed that in Barbados. B.37161 dominates the cane acreage, but has shown considerable decrease in area for the 1952 crop, while B.41211, which represented less than one percent. of the area in 1950, has increased to 8.38%. As in Barbados, this variety has given consistently high yields of sugar per acre, and is particularly well suited to the lower altitudes.

B.41227 shows a small increase in acreage, and is best suited to the high rainfall areas at medium elevation. At the highest altitudes, B.34104 still gives very good results, and new plantings under such conditions have been reflected in a small increase in the percent. area under this variety.

For the crops of 1951 and 1952, the figures were as follows:—

	1951	1952
B.37161	93.69	83.94
B.41211	2.74	8.38
B.34104	1.63	2.98
B.3337	0.39	1.46
B.41227	0.09	0.26
B.4098	0.17	0.08

St. Lucia

The long ratooning system practised in St. Lucia results in variety changes being slower than in other colonies. Further, the system of supplying old ratoon fields with newer varieties complicates the variety picture. For instance, the area shown under B.H.10(12) in the table below is mostly in old ratoons, heavily supplied with B.37161 and B.37172.

B.37161 is the major variety, but B.37172 and B.4362 are being extensively planted, and have given exceptionally good results. B.4362 in particular has given good yields with excellent juice quality, and represents already a higher proportion of the cane area in St. Lucia than in any other Caribbean country.

B.37172, as would be expected from its performance elsewhere in the West Indies, gives heavy tonnages of sound cane with good juice quality under rather poor ripening conditions.

Approximate variety percent. acreage figures for the 1952 crop were as follows:—

B.37161	34.5
B.H.10(12)	15.7
B.37172	15.4
B.4362	11.0
B.4098	8.9
B.34104	8.5
B.41227	2.2
B.3337	1.7

IV. STATEMENT OF EXPENDITURE FOR 1951—52

1. Recurrent

1.	Personal Emoluments	$14,717.08
2.	Provident Fund	859.20
3.	Seedling Trials	22,436.53
4.	Stationery & Library	1,447.17
5.	Travelling	3,097.90
6.	Entertainment	95.00
7.	Incidentals	958.96
		$43,611.84

2. Non-Recurrent

Road construction	$1,070.00	
Additional Land	753.64	
Water Pump	4,485.11	
Photoperiod Experiment	227.62	
Calculating Machine	466.00	
Grass cutter	443 60	
	$7,445.97	$ 7,445.97
Total		$51,057.81

APPENDIX I

SUGAR CANE BREEDING, SEEDLING RAISING AND FIELD NURSERY PLANTING 1951—52 B.53' SHORT SEASON TRIAL AND B.54' SERIES

Details of Crosses made, their Germinations, Numbers Potted and Numbers Planted in the Field Nursery and/or in the B.53' Series Short Season First Year Seedling Trial

CROSS	GROUP	No. Germinated	No. Potted	No. Planted in Nursery	No. Planted in First Year Trial
	S. officinarum x S. spontaneum				
B.3353 x P.O.J.2878	3rd Nobilisation Glagah	190	190	130	—
B.3439 x B.3337 ...	,, ,, ,, ...	500	500	240	100
B.3439 x P.O.J.2714	,, ,, ,, ...	14	14	6	—
B.38272 x B.603 ...	,, ,, ,, ...	400	150	130	100
B.38272 x B.3915 ...	,, ,, ,, ...	—	—	—	—
B.38272 x B.39220 ...	,, ,, ,, ...	300	250	199	—
B.41277 x P.O.J.2878	,, ,, ,, ...	80	70	70	—
Ba.11569 x B.39274 ...	3rd Nobilisation Celebes	350	350	250	—
B.35197 x E.K.28 ...	,, ,, ,, ...	98	89	89	—
B.34102 x B.3337 ...	4th Nobilisation Glagah	5,600	500	250	100
B.4145 x P.O.J.2878	,, ,, ,, ...	36	36	27	—
B.42304 x P.O.J.2878	,, ,, ,, ...	200	200	150	—
B.37172 x B.41211 ...	Noble x Glagah x Local	1,200	400	250	—
Co.421 x B.41211 ...	,, x ,, x ,, ...	5,500	1,500	740	200
B.43349 x B.48125 ...	Noble x Glagah x Celebes	55	55	55	—
B.47179 x P.O.J.2878	,, x ,, x ,, ...	400	200	120	—
B.43349 x B.41211 ...	Noble x Glagah x Local x Celebes	1,200	500	300	—
		16,123	5,004	3,006	400
	S. officinarum x S. barberi				
B.3365 x B.603 ...	3rd Nobilisation Chunnee	160	160	140	—
	S. officinarum x S. spontaneum x S. barberi				
Ba.11569 x B.45111 ...	8oble x Glagah x Chunnee ...	60	60	48	—
Ba.11569 x B.41227 ...	,, x ,, x ,,, ...	59	59	59	—
B.3439 x B.37193 ...	,, x ,, x ,, ...	3,000	700	500	—
B.35207 x P.O.J.2878	,, x ,, x ,, ...	800	700	490	100
B 37161 x B3337 ...	,, x ,, x ,, ...	600	600	250	100
B.37161 x P.O.J.2878	,, x ,, x ,, ...	43	43	42	—
B.37172 x B.41227 ...	,, x ,, x ,, ...	600	500	299	—
B.39207 x B.41227 ...	,, x ,, x ,, ...	154	154	120	—
B.39207 x P.O.J.2878	,, x ,, x ,, ...	240	200	120	—
B.40157 x B.41227 ...	,, x ,, x ,, ...	190	190	120	—
B.4145 x B.37175 ...	,, x ,, x ,, ...	45	45	38	—
B.4145 x B.37193 ...	,, x ,, x ,, ...	1,100	800	420	100
B.41277 x B.41227 ...	,, x ,, x ,, ...	450	150	120	—
B.42304 x B.37193 ...	,, x ,, x ,, ...	5,000	300	200	—
B.4362 x B.37175 ...	,, x ,, x ,, ...	330	330	290	—
B.4467 x P.O.J.2878	,, x ,, x ,, ...	18	18	13	—
B.44167 x P.O.J.2878	,, x ,, x ,, ...	240	200	120	—
B.4558 x P.O.J.2878	,, x ,, x ,, ...	400	150	120	—

APPENDIX I—*Continued.*

CROSS	GROUP	No. Germinated	No. Potted	No. Planted in Nursery	No. Planted in First Year Trial
B.3365 x B.34104 ...	Noble x Local x Chunnee	700	700	399	100
B.37161 x B.34104 ...	,, x ,, x ,, ...	70	70	50	—
B.3353 x B.4098 ...	Noble x Glagah x Local x Chunnee	1,800	350	120	100
B.3439 x B.4098 ...	,, x ,, x ,, x ,, ...	8,000	500	310	100
B.3439 x B.45122 ...	,, x ,, x ,, x ,, ...	400	150	120	—
B.3439 x Co.281 ...	,, x ,, x ,, x ,, ...	200	200	160	—
B.3439 x Co.290 ...	,, x ,, x ,, x ,, ...	200	200	160	100
B.35207 x B.48392 ...	Noble x Glagah x Local x Chunnee	600	550	200	—
B.35207 x B.5056 ...	,, x ,, x ,, x ,, ...	700	250	120	—
B.37161 x B.4098 ...	,, x ,, x ,, x ,, ...	250	250	210	—
B.37172 x B.4098 ...	,, x ,, x ,, x ,, ...	600	500	120	100
B.37172 x B.44150 ...	,, x ,, x ,, x ,, ...	300	160	120	—
B.37172 x B.46397 ...	,, x ,, x ,, x ,, ...	250	250	150	—
B.37172 x B.47147 ...	,, x ,, x ,, x ,, ...	1,050	500	360	—
B.4094 x P.O.J.2878	,, x ,, x ,, x , ...	—	—	—	—
B.4096 x B.35187 ...	,, x ,, x ,, x ,, ...	17	17	15	—
B.40157 x B.34104 ...	,, x ,, x ,, x ,, ...	200	200	130	—
B.4145 x B.34104 ...	,, x ,, x ,, x ,, ...	800	800	400	100
B.4145 x B.4098 ...	,, x ,, x ,, x ,, ...	1,200	1,200	900	200
B.4145 x Co.281 ...	,, x ,, x ,, x ,, ...	34	34	30	—
B.4362 x B.34104 ...	,, x ,, x ,, x ,, ...	400	400	300	—
B.4362 x B.4098 ...	,, x ,, x ,, x ,, ...	950	950	669	100
B.4362 x Co.419 ...	,, x ,, x ,, x ,, ...	25	25	24	—
B.44167 x B.47310 ...	,, x ,, x ,, x ,, ...	300	150	100	—
B.44167 x B48384 ...	,, ,, x ,, x ,, ...	400	150	140	—
B.4558 x B.4098 ...	,, x ,, x ,, x ,, ...	400	150	101	—
B.45137 x P.O.J.2878	,, x ,, x ,, x ,, ...	1,000	300	250	—
B.45170 x B.41227 ...	,, x ,, x ,, x ,, ...	2,000	500	300	100
B.45170 xB.41242 ...	,, x ,, x ,, x ,, ...	4,500	150	100	—
B.45170 x B.43214 ...	,, x ,, x ,, x ,, ...	8,100	150	80	—
B.45170 x P.O.J.2878	,, x ,, x ,, x ,, ...	2,000	500	250	—
B.45258 x B.41227 ...	,, x ,, x ,, x ,, ...	800	250	150	—
B.45258 x P.O.J.2878	,, x ,, x ,, x ,, ...	400	250	150	—
B.45285 xB.41227 ...	,, x ,, x ,, x ,, ...	1,000	150	120	—
B.4699 x P.O.J.2878	,, x ,, x ,, x ,, ...	193	190	120	—
B.46190 x B.4098 ...	,, x ,, x ,, x ,, ...	500	150	120	—
B.46199 x B.4098 ...	,, x ,, x ,, x ,, ...	36	36	32	—
B.47386 x B.4098 ...	,, x ,, x ,, x ,, ...	3,000	150	120	—
B.50151 x B.41211 ...	,, x ,, x ,, x ,, ...	188	150	120	—
B.50213 x B.41211 ...	,, x ,, x ,, x ,, ...	300	250	149	—
Co.421 x B.46223 ...	,, x ,, x ,, x ,, ...	950	700	410	100
P.O.J.213 x B.4098	,, x ,, x ,, x ,, ...	1,200	150	120	—
B.39207 x B.48231 ...	Noble x Glagah xCelebes xChunnee	400	250	150	—
B.4362 x B.43391 ...	,, x ,, x ,, x ,,	400	400	300	—
B.35247 x B.4847 ...	Noble x Local x Celebes x Chunnee	800	350	200	—
B.35197 x B.50382 ...	Noble x Glagah x Local x Celebes x Chunnee	40	40	39	—
B.35247 xCo.419 ...	Noble x Glagah x Local x Celebes x Chunnee	500	180	120	—
B.39177 x B.43391 ...	Noble x Glagah x Local x Celebes x Chunnee	800	700	509	—
B.43283 x B.41227 ...	Noble x Glagah x Local x Celebes x Chunnee	800	600	286	100
		63,332	20,701	13,222	1,500

APPENDIX I—*Concluded.*

CROSS	GROUP	No. Germinated	No. Potted	No. Planted in Nursery	No. Planted in First Year Trial
	S. officinarum x S. spontaneum x S. robustum				
Co.421 x B.47198 ...	Noble x Glagah x Local x Celebes x Robustum	1,500	150	100	—
Ba.11569 x B.47198 ...	Noble x Celebes x Robustum ...	—	—	—	—
		1,500	150	100	—
	S. officinarum x S. spontaneum x S. barberi x S. robustum				
B.4596 x B.47198 ...	Noble x Local x Celebes x Chunnee x Robustum	110	110	89	—
	S. officinarum x S. barberi x S. robustum				
B.4550 x B.603 ...	Noble x Chunnee x Robustum ...	350	150	80	—
	S. officinarum x S. spontaneum x S. barberi x S. sinense				
B.39254 x B.34104 ...	Noble x Local x Chunnee x Sinense	14	14	10	—
B.42304 x B.45151 ...	Noble x Glagah x Local x Chunnee x Sinense	650	600	300	—
B.44182 x B.45151 ...	Noble x Glagah x Local x Chunnee x Sinense ... ... Sinense	110	110	80	—
B.44341 x B.3337 ...	Noble x Glagah x Local x Chunnee x Sinense	600	600	309	100
B.45154 x B.34104 ...	Noble x Glagah x Local x Chunnee x Sinense	1,500	150	120	—
B.45154 x B.4098 ...	Noble x Glagah x Local x Chunnee x Sinense	9,000	150	120	—
B.45220 x B.4098 ...	Noble x Glagah x Local x Chunnee x Sinense	—	—	—	—
B.4726 x B.45151 ...	Nobel x Glagah x Local x Chunnee x Sinense	800	300	160	—
B.47386 x B.45151 ...	Noble x Glagah x Local x Chunnee x Sinense	700	150	90	—
B.47399 x B.4098 ...	Noble x Glagah x Local x Chunnee x Sinense	250	250	120	—
B.47399 x B.41211 ...	Noble x Glagah x Local x Chunnee x Sinense	2,000	300	140	—
		15,624	2,624	1,449	100
	GRAND TOTALS	97,199	28,899	18,086	2,000

APPENDIX II

SUGAR CANE FIRST YEAR SEEDLINGS—B.53' SERIES

List of Crosses and the Number of Seedlings of Each Planted in the Field Nursery (May 1951) and in the First Year Seedling Trial (October 1951)

Cross	Group	No. Planted in Field Nursery	No. Planted in First Year Seedling Trial
	S. officinarum x S. spontaneum		
B.34102 x B.3337 ...	3rd Nobilisation Glagah	327	169
B.38272 x B.3915 ...	,, ,, ,, ...	9	5
B.3439 x B.3337 ...	,, ,, ,, ...	241	120
Ba.11569 x Co.421 ...	Noble x Glagah x Local	46	30
Co.421 x B.41211 ...	,, x ,, x ,, ...	1,634	750
B.3439 x B.43391 ...	Noble x Glagah x Celebes	47	20
B.34102 x B.43391 ...	,, x ,, x ,, ...	21	15
B.35247 x B.3337 ...	,, x ,, x ,, ...	749	80
B.4145 x B.43337 ...	,, x ,, x ,, ...	11	8
B.43349 x P.O.J.2878	,, x ,, x ,, ...	10	5
Ba.11569 x B.49158 ...	Noble x Glagah x Local x Celebes ...	27	9
		3,122	1,211
	S. officinarum x S. barberi		
B.3365 x B.603 ...	3rd Nobilisation Chunnee	290	120
B.35206 x B.4022 ...	4th ,, ,, ...	12	8
		302	128
	S. officinarum x S. spontaneum x S. barberi		
B.3365 x B.34104 ...	Noble x Local x Chunnee	115	70
B.37161 x B.34104 ...	,, x ,, x ,, ...	100	60
B.35207 x P.O.J.2878	Noble x Glagah x Chunnee	450	160
B.37161 x B.3337 ...	,, x ,, x ,, ...	260	90
B.37161 x B.37175 ...	,, x ,, x ,, ...	31	20
B.37161 x P.O.J.2878	,, x ,, x ,, ...	49	30
B.39207 x P.O.J.2878	,, x ,, x ,, ...	191	100
B.39207 x B.41227 ...	,, x ,, x ,, ...	26	14
B.40164 x B.41227 ...	,, x ,, x ,, ...	240	100
B.4145 x B.37193 ...	,, x ,, x ,, ...	740	270
B.4362 x B37193 ...	,, x ,, x ,, ...	479	160
B.4362 x B.39220 ...	,, x ,, x ,, ...	108	50
B.4362 x B.40175 ...	,, x ,, x ,, ...	413	140
B.4362 x B.41203 ...	,, x ,, x ,, ...	29	20
B.4362 x B.41227 ...	,, x ,, x ,, ...	32	20
B.4362 x B.4327 ...	,, x ,, x ,, ...	55	30
B.4362 x P.O.J.2878	,, x ,, x ,, ...	173	97
B.3172 x B.4098 ...	Noble x Glagah x Local x Chunnee ...	50	30
B.3353 x B.4098 ...	,, x ,, x ,, x ,, ...	115	60
B.3371 x B.34104 ...	,, x ,, x ,, x ,, ...	83	25
B.3439 x B.43235 ...	,, x ,, x ,, x ,, ...	256	120
B.3439 x Co.290 ...	,, x ,, x ,, x ,, ...	460	200
B.3439 x Co.419 ...	,, x ,, x ,, x ,, ...	70	35
B.34102 x B.34104 ...	,, x ,, x ,, x ,, ...	225	100
B.37161 x B4098 ...	,, x ,, x ,, x ,, ...	830	300
B.37194 x B.4098 ...	,, x ,, x ,, x ,, ...	35	20
B.37172 x B.34104 ...	,, x ,, x ,, x ,, ...	51	20
B.37172 x B.4098 ...	,, x ,, x ,, x ,, ...	388	150
B.37172 x B.42231 ...	,, x ,, x ,, x ,, ...	170	40

APPENDIX II—*Continued.*

Cross	Group	No. Planted in Field Nursery	No. Planted in First Year Seedling Trial
B.38212 x B.4098 ...	Noble x Glagah x Local x Chunnee ...	415	160
B.39177 x B.4098 ...	„ x „ x „ x „ ...	36	20
B.39177 x P.O.J.2878	„ x „ x „ x „ ...	45	25
B.4092 x B.3337 ...	„ x „ x „ x „ ...	200	100
B.4096 x B(30)L.7	„ x „ x „ x „ ...	149	70
B.4096 x B.35187 ...	„ x „ x „ x „ ...	28	20
B.4111 x B.4098 ...	„ x „ x „ x „ ...	300	100
B.4145 x B.34104 ...	„ x „ x „ x „ ...	142	80
B.4145 x B.4098 ...	„ x „ x „ x „ ...	760	400
B.4145 x B.42231 ...	„ x „ x „ x „ ...	23	15
B.4214 x Co.419 ...	„ x „ x „ x „ ...	8	5
B.42279 x P.O.J.2878	„ x „ x „ x „ ...	15	10
B.42304 x B.38192 ...	„ x „ x „ x „ ...	308	100
B.4362 x B.4098 ...	„ x „ x „ x „ ...	1,524	800
B.4362 x B.43235 ...	„ x „ x „ x „ ...	126	60
B.4362 x Co.419 ...	„ x „ x „ x „ ...	79	50
B.43253 xB.4098 ...	„ x „ x „ x „ ...	160	83
B.43253 x Co.419 ...	„ x „ x „ x „ ...	10	5
B.43358 x B.41227 ...	„ x „ x „ x „ ...	170	40
B.43358 x P.O.J.2878	„ x „ x „ x „ ...	235	100
B.4596 x P.O.J.2878	„ x „ x „ x „ ...	370	100
B.45117 x P.O.J.2878	„ x „ x „ x „ ...	109	40
B.45137 x B.41227 ...	„ x „ x „ x „ ...	285	100
B.45170 x B.41227 ...	„ x „ x „ x „ ...	690	160
B.45170 x Co.4193 ...	„ x „ x „ x „ ...	184	60
B.45285 x B.3719 ...	„ x „ x „ x „ ...	107	0
B.4699 x B.4098 ...	„ x „ x „ x „ ...	326	100
B.4726 x B.4098 ...	„ x „ x „ x „ ...	190	100
B.48361 x B.34104 ...	„ x „ x „ x „ ...	184	35
B.49247 x B.41227 ...	„ x „ x „ x „ ...	204	60
Co.421 x B.4098 ...	„ x „ x „ x „ ...	44	30
Co.421 x B.47147 ...	„ x „ x „ x „ ...	442	230
Co.421 x B.47419 ...	„ x „ x „ x „ ...	282	100
B.35197 x B.41227 ...	Noble x Glagah x Celebes x Chunnee ...	274	96
B.35197 x B.47361 ...	„ x „ x „ x „ ...	375	100
B.37161 x B.43391 ...	„ x „ x „ x „ ...	18	10
B.4362 x B.43391 ...	„ x „ x „ x „ x ...	41	15
B.43349 x B.47310 ...	„ x „ x „ x „ ...	329	100
B.43349 x B.47320 ...	„ x „ x „ x „ ...	160	50
B.35197 x B.46397 ...	Noble x Glagah x Local x Celebes Chunnee	252	132
B.35247 x Co.419 ...	Noble x Glagah x Local x Celebes Chunnee	353	160
B.4362 x B.46232 ...	Noble x Glagah x Local x Celebes x Chunnee	37	20
B.43283 x B.41227 ...	Noble x Glagah x Local x Celebes x Chunnee	335	150
Co.421 x B.43375 ...	Noble x Glagah x Local x Celebes x Chunnee	645	200
B.39157 x B.4098 ...	Noble x Local x Glagah x Celebes x Chunnee	435	145
		17,628	7,067

APPENDIX II—*Concluded.*

Cross	Group	No. Planted in Field Nursery	No. Planted in First Year Seedling Trial
	S. officinarum x S. spontaneum x S. sinense		
B.47183 x P.O.J.2878	Noble x Glagah x Celebes x Sinense ...	77	30
B.45154 x B.41211 ...	Noble x Glagah x Local x Sinense ...	249	120
B.39254 x P.O.J.2878	Noble x Glagah x Sinense	7	5
		333	155
B.37161 x B.45151 ...	Noble x Local x Chunnee x Sinense ...	190	90
B.39254 x B.34104 ...	,, x ,, x ,, x ,, ...	9	5
B.3439 x B.45151 ...	Noble x Glagah x Chunnee x Sinense ..	483	180
B.39254 x B.4098 ...	Noble x Glagah x Local x Chunnee x Sinense	183	100
B.39254 x B.4534 ...	Noble x Glagah x Local x Chunnee x Sinense	170	60
B.45154 x B.37193 ...	Noble x Glagah x Chunnee x Sinense ...	256	100
Co.421 x B.45116 ...	,, x ,, x ,, x ,, ...	287	100
B.37226 x B.47306 ...	Noble x Glagah x Chunnee x Sinense ...	47	20
B.4145 x B.45151 ...	Noble x Glagah x Local x Chunnee x Sinense	140	60
B.4502 x B.45151 ...	Noble x Glagah x Local x Chunnee x Sinense	500	145
B.47329 x B.4682 ...	Noble x Glagah x Local x Chunnee x... Sinense	61	30
		2,326	890
	S. officinarum x S. barberi x S. robustum		
B.4550 x B.603 ...	Noble x Chunnee x Robustum	10	6
B.45107 x B.603 ...	,, x ,, x ,, ...	30	13
B.45198 x B.391 ...	,, x ,, x ,, ...	104	60
		144	79
	S. officinarum x S. spontaneum x Erianthus arundinaceous		
B.48118 x P.O.J.2878	Noble x Glagah x Erianthus	275	100
	Grand Totals	24,130	9,630